JANUARY, 1960

AMERICAN AVIATION Publication Since 19

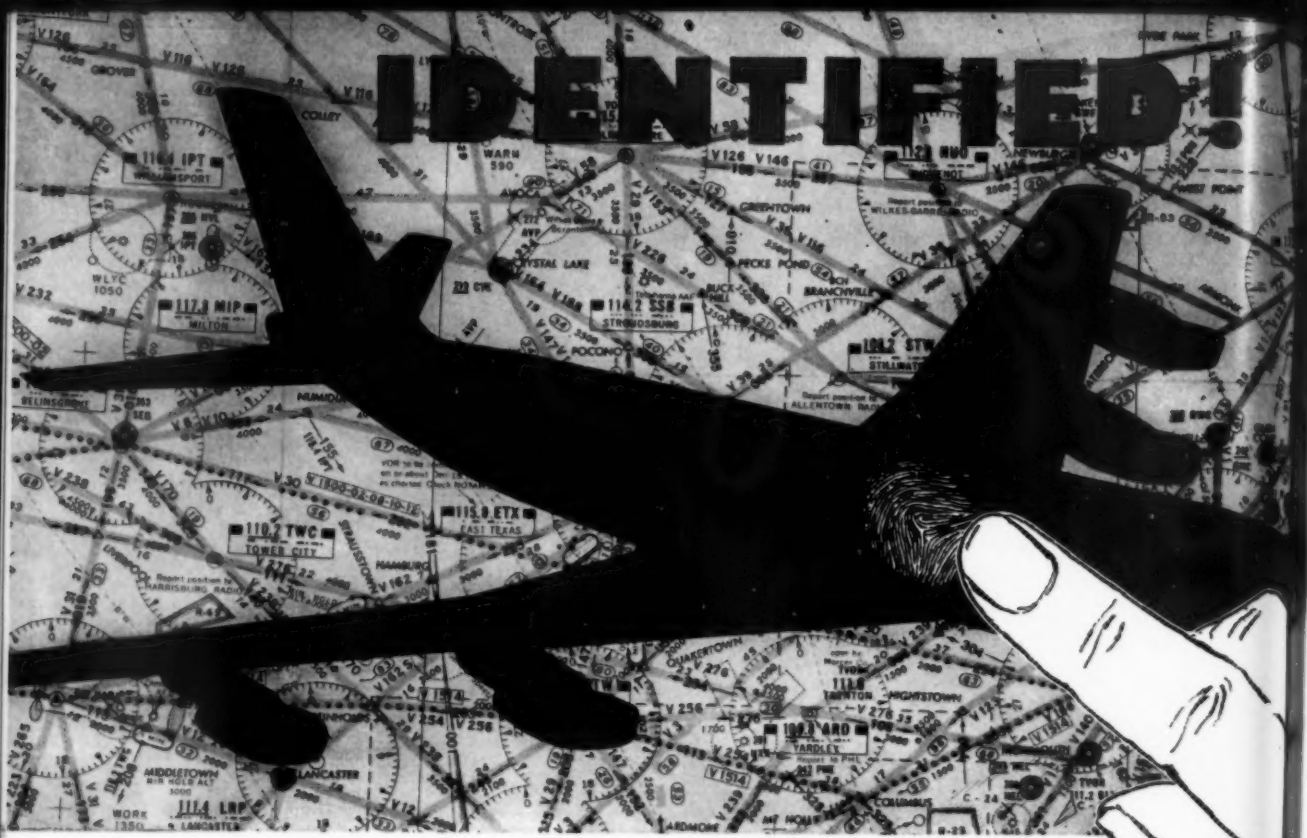
airlift

WORLD AIR TRANSPORTATION

In This Issue:

- FORECAST FOR '60
- SPEEDUP FOR THE DC-8
- MacINTYRE IS EASTERN'S BOSS

CIRCULATION COPY 2



ATC Radar Operators know **who** and **where** you are with the ***wilcox*** 714 ATC TRANSPONDER

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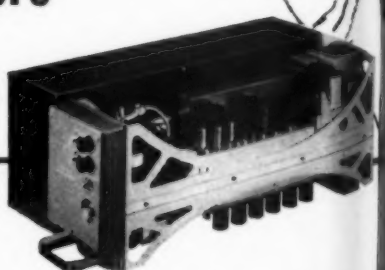

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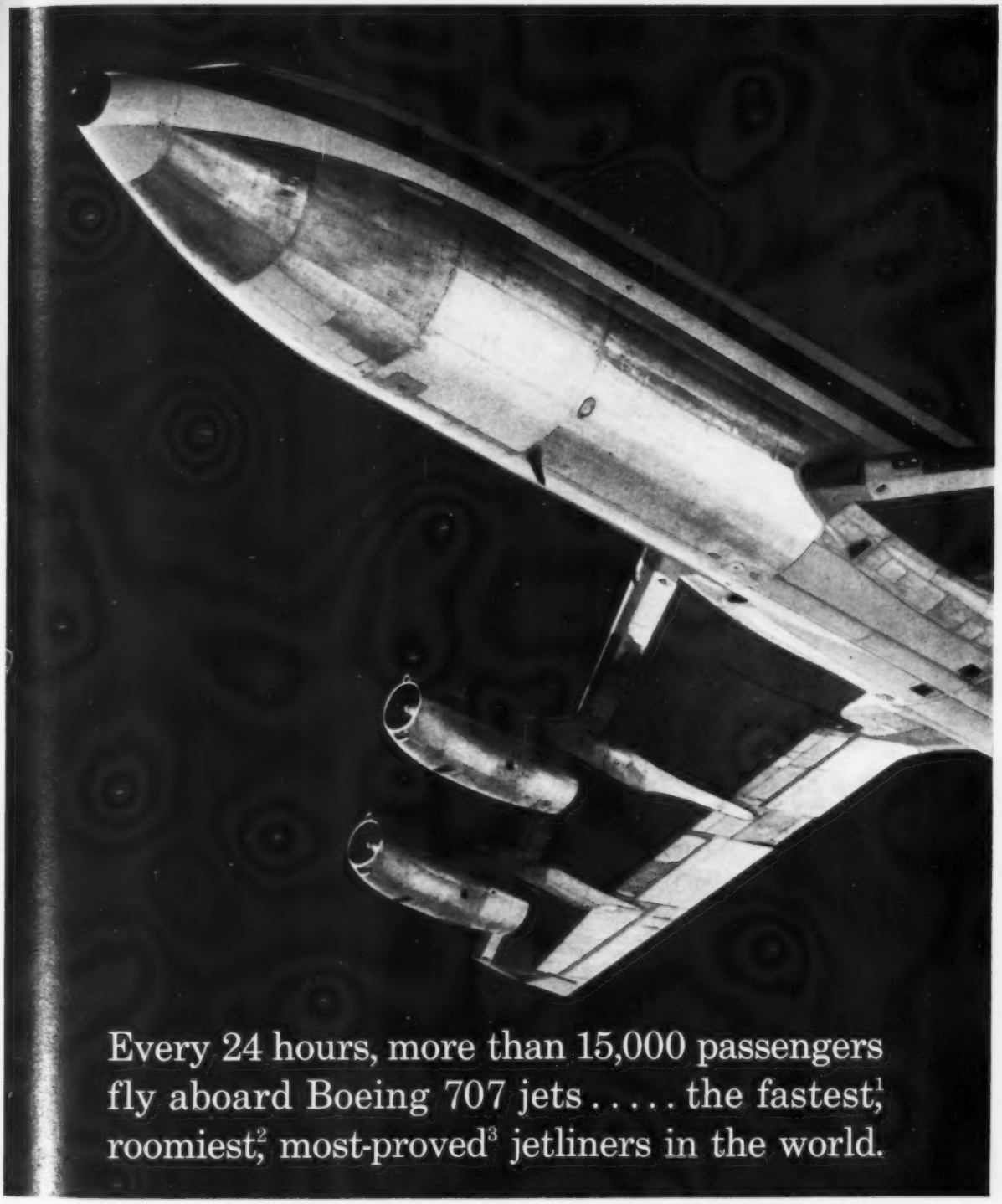

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1. F stest. Maximum speed: 707 Stra liner, 610 mph; 707 Intercontine al, 630 mph. 707s hold U.S., tran Polar, Atlantic, Pacific speed reco ls. Intercontinental holds non p jetliner record, 5830 miles.

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by the world's most experienced builder of jet airliners

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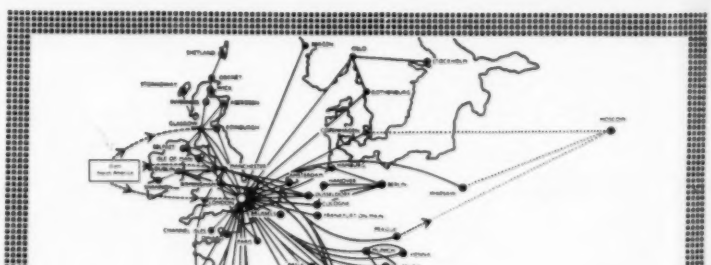
If you fly anywhere inside Europe, it's more than even chances you'll fly BEA. In the last financial year for instance, BEA carried over 2,765,000 passengers—well over half the total number of air passengers to and from Europe on scheduled services. What is more, BEA operates more scheduled services to more destinations in Europe than any other airline. These facts highlight the success of BEA's policy of development and expansion —a policy aimed at providing Europe with an air-service second to none.



EUROPE'S FOREMOST AIRLINE

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airlift

(U.S. Reg. Pdg.)

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ASSOCIATE EDITORS
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CONTRIBUTING EDITORS
J. D. Smith, William V. Henzey, Selig Altschul

CORRESPONDENTS
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ART
Wm. H. Martin, Director ..... Frank F. Kozelek

PRODUCTION
John Walen, Manager ..... Elsie Gray

EDITORIAL ADDRESS
1001 Vermont Ave., N.W., Washington 5, D.C., U.S.A.
Phone: Sterling 3-5400 Cable: AMERAV

BUSINESS STAFF
Arthur J. Newfield ..... Assistant Publisher
Gerald T. O'Mara ..... Adv. Sales Mgr.
Helen C. Peary ..... Adv. Service Mgr.
Lawrence L. Brettner ..... Circ. Promotion Mgr.
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REGIONAL OFFICES
New York City: 20 East 46th St., Gerald T. O'Mara. Phone: Yukon 6-3900.
Chicago: 139 N. Clark St. Phone: Central 6-5804.
West Coast: 8929 Wilshire Blvd., Beverly Hills, Calif. Phone: Oleander 5-9161 and Olympia 7-1555.
Florida: 208 Almeria Ave., Coral Gables. Phone: Highland 4-8326.
Geneva: 10 Rue Grenus, Anthony Vandyk. Phone: 32 10 44.
London: 28 Bruton St., Norall & Hart Ltd. Phone: Grosvenor 8356.
Paris: 11 Rue Condorcet, Jean-Marie Riche. Phone: TRU 15-39.
Frankfurt: Freidrich Ebert Anlage 3, Horst Horlitz. Phone: 334810.

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Fred S. Hunter ..... Vice Pres. & Editorial Dir.

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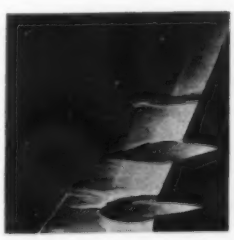
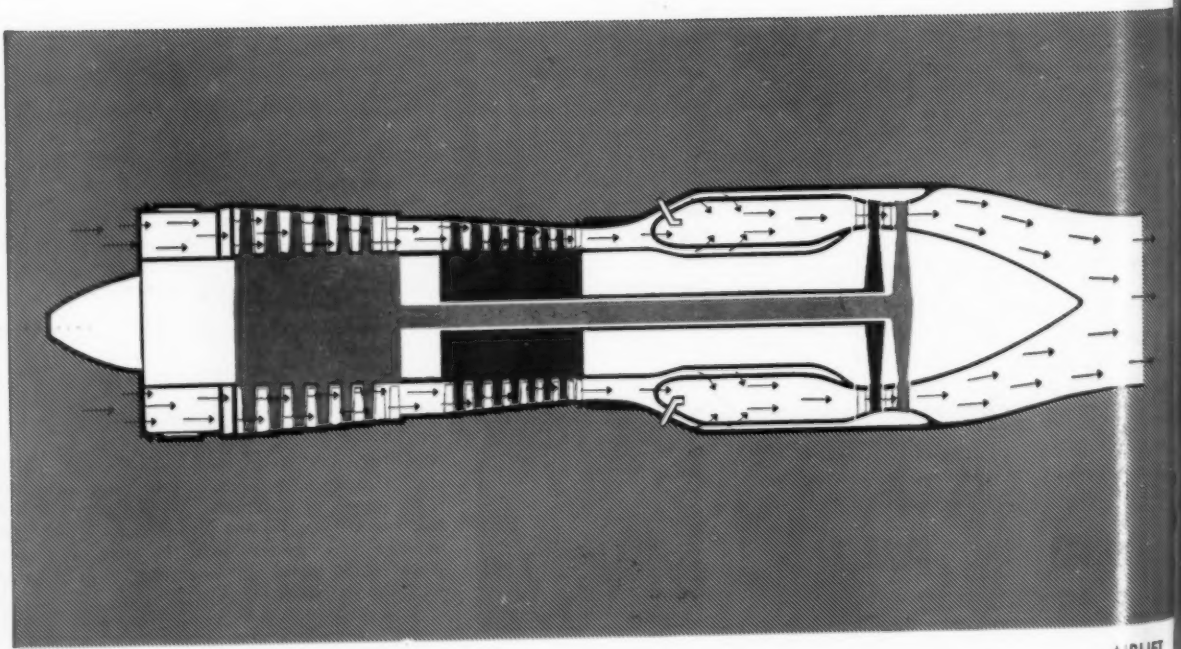


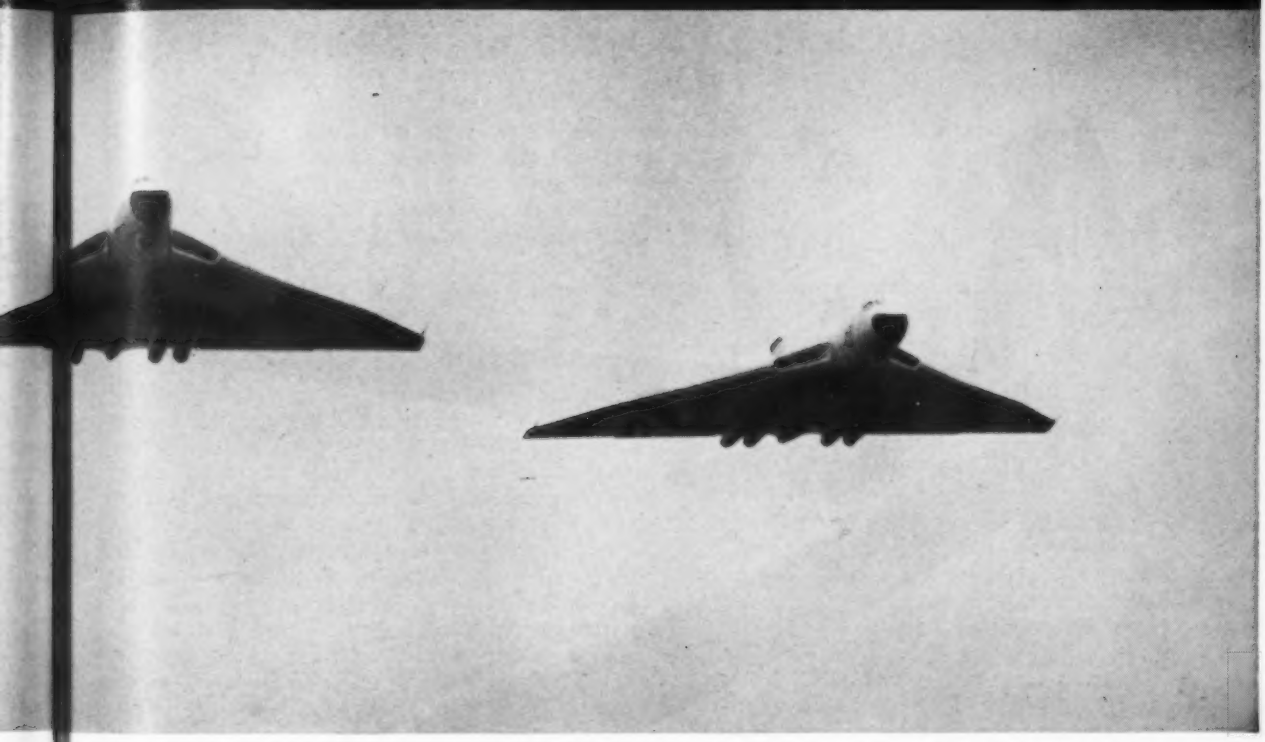
ON THE COVER—A new look in wings due to greet passengers come late 1961. Although still but a subject of windtunnel photographers, it will become the wing outline of Convair's Model 600 jet. The new "bulges" atop the wing are "anti-shock" bodies developed as an outgrowth of "area rule" aerodynamics.

Olympus turbojet – high power, low fuel consumpti pe

...ANOTHER ENGINEERIN



...perb handling qualities, great development potential...



IN ADVANCE BY BRISTOL SIDDELEY

One of the largest manufacturers of motive power units in the world, Bristol Siddeley Engines Limited produce the Olympus. The Olympus is one of the most powerful and efficient high-thrust turbojets in service anywhere and therefore most performance details are security restricted. It can be said, however, that the Olympus possesses outstanding handling qualities. In a slam acceleration to full power from ground idling it considerably betters the official requirement. It also has one of the lowest specific fuel consumptions, and the highest thrust/weight ratio of any type tested aero-engine in its class.

The Olympus owes its excellent all-round performance to the two-spool compressor system, pioneered by Bristol Siddeley and since adopted by the leading aero-engine producers in Britain and the USA. Proof of Olympus reliability is given by the fact that it already has the longest overhaul life of any British fighter or bomber powerplant. And the series has been proved to have enormous development potential. The first production version delivered 11,000-lb thrust dry, while the current engine reaches 17,000-lb thrust dry (24,000 lb with fully variable reheat). Even more advanced Olympus versions are rated at 33,000 lb with reheat.

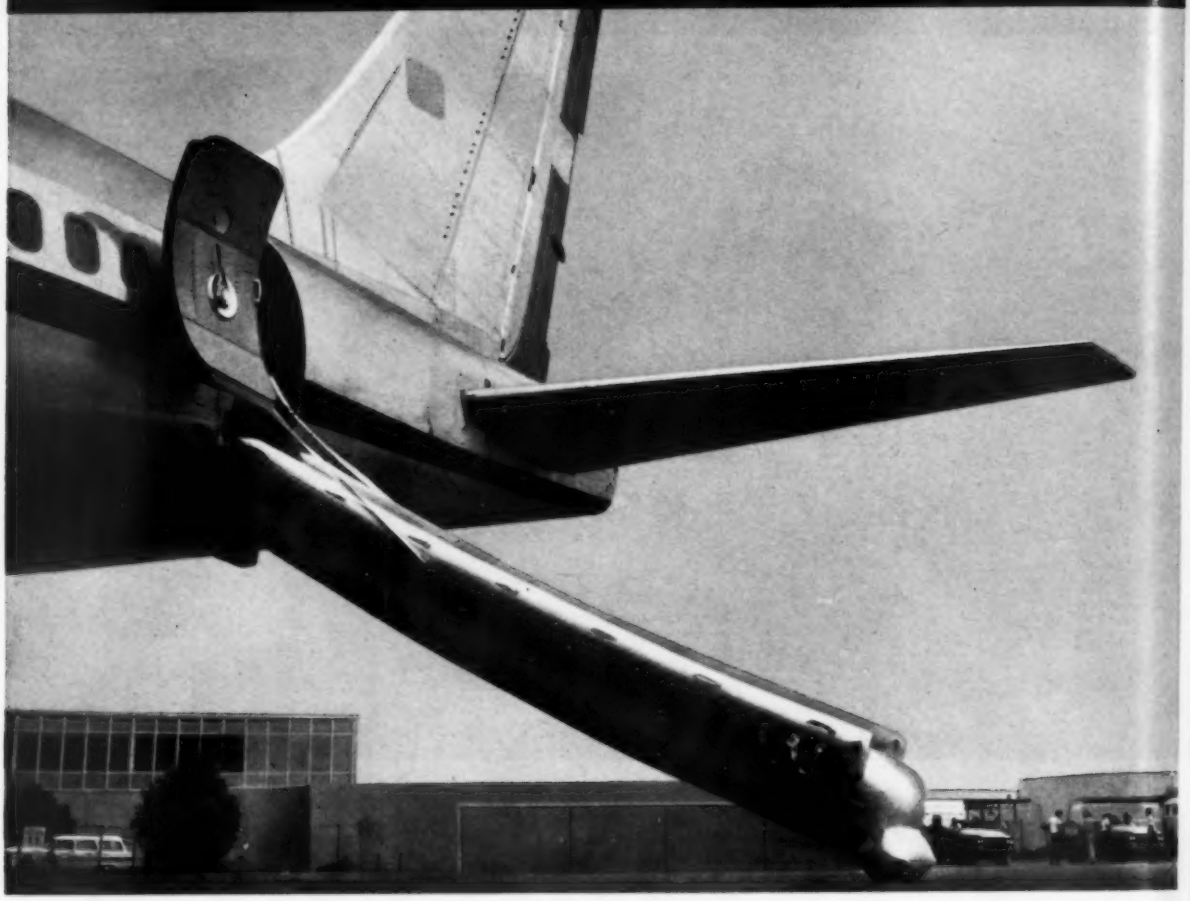
Olympus applications

The Bristol Siddeley Olympus is ideally suited to operation at transonic and supersonic speeds. The Mark 201 gives the Avro Vulcan B 2 V-bomber an all-round performance unsurpassed by any other aircraft of its type. The Olympus has also been selected for the very advanced Vickers/English Electric TSR-2, the RAF's new tactical support/reconnaissance aircraft. Other Olympus versions are under active consideration for the next generation of civil airliners—the supersonic transports.

BRISTOL SIDDELEY ENGINES LIMITED

Bristol Aero-Industries Limited, 200 International Aviation Building, Montreal 3. Telephone: University 6-5471

ESCAPE SLIDE / another product of Air Cruisers research



DEPENDABLE SURVIVAL EQUIPMENT

The Air Cruisers escape slide shown here assists passengers and crew to evacuate the aircraft in an emergency in a matter of seconds without injury. Simple to operate, it is standard equipment on most turbine-powered passenger aircraft.

Thoroughly tested by the military and commercial airlines, the inflatable escape slide is another major achievement in a field where Air Cruisers has been the leader for more than 30 years...dependable, lightweight survival equipment. The only manufacturer which conducts continuous research in survival equipment, Air Cruisers is America's most experienced fabricator of inflatables from rubberized nylon materials.

The Air Cruisers jet pump, which produces the rapid inflation vital to the fast, dependable operation of the escape slide, is another contribution toward better survival equipment. Today, more products, including life rafts, deceleration bags, etc., are inflated by Air Cruisers jet pumps than by any other kind.

Your inquiries are invited.

THE GARRETT CORPORATION

AIR CRUISERS DIVISION

BELMAR, NEW JERSEY

LIFE JACKETS • LIFE RAFTS • HELICOPTER FLOATS • ESCAPE SLIDES • GAS BREATHER BAGS • DECELERATION BAGS

Rough Subsidy Outlook for 1960

Storm warnings are up for local carriers. Requests for subsidy for the fiscal year starting July 1 are about $20 million over the current year. The Bureau of the Budget is recommending a ceiling. Congress is getting ready to put up a battle to keep subsidy costs down. It's going to be a rough year.

The carriers, themselves, are powerless to stop the steady rise in operating costs.

Crux of what is going to be a truly critical situation is the multitude of new stops authorized by the CAB, many of these stops being marginal or submarginal to start with. CAB has had what's known as a "use it or lose it" policy for small stops but has lagged far behind in enforcing a good idea.

CAB could ease the subsidy burden considerably by expediting the immediate removal of scores of local stops which cannot come close to justifying the high cost of air service. Unless steps are taken now, local carriers are up against the toughest battle for financial aid they've ever had and the entire industry will suffer. CAB has gone far overboard in extending service to marginal areas. There should be no mistaking the attitude of Congressional appropriation committees—they are in no mood to continue upping the subsidy bill.

They Read the Ads

Evidently two major airlines have been reading their own jet age advertisements. They're putting in motion for themselves the same benefits and advantages of faster air transportation which they've been preaching to industry.

By abolishing its regional setup, American Airlines is recognizing that regional divisions merely slow up day to day activities. When distant personnel can fly to New York for meetings, and return home the same day, why have a cumbersome regional structure? Jets make centralization possible.

Pan American World Airways is pursuing the same goal by abolishing its Pacific-Alaska Division in San Francisco, making this gateway city merely a line stop on the global circuit. Some similar type of consolidation is in store for the Latin American Division.

These are forward steps in making company organizations as streamlined as the jets themselves.

Another advance has been made by American with its separation of daily operational functions from policy, planning and research, somewhat along the lines adopted by TWA earlier last year. It is time for every airline in the world to re-examine its organizational structure in the light of the jet age.

Too Little and Too Late

Two recent local airline accidents in low weather conditions at Charlottesville, Va., and Williamsport, Pa., have a moral that dates back to the days when the present trunk airlines were having the same experiences.

Lack of navigational aids is the moral, and here the CAB must share blame with FAA in failing to coordinate local airline authorizations with adequate aids. Pilots incorrectly assuming their position. Absence of control towers. It's an old, old story.

The need for a control tower at Williamsport has been fought for two years. Ironically, (thanks more to the local community and Congress than anything else), the tower went into operation the day *after* the accident.

We have told CAB this many times, and we tell it again—that CAB is criminally negligent in blindly authorizing local carrier service without making certain that FAA and local communities will have adequate navigational aids in being before starting service. Not only is it unfair to the traveling public, but in some areas the service itself is so sporadic due to lack of aids that schedule dependability is often worse than nothing at all.

There are times when CAB needs a lot less politics, a lot less blind crusading, a lot less effort to please pressure groups, and a lot less law. What it does need is a heap of common sense based on operational safety and dependability.

Agonizing Luncheons

France's Major Andre Turcat was highly pleased and flattered, no doubt, to receive the 1959 Harmon International Trophy for Aviators, but he must have been bored stiff by the long-winded luncheon ceremonies which dragged on into the afternoon at the Mayflower Hotel in Washington following formal presentation of the citation by Vice President Nixon at the Capitol. When will arrangements committees learn to put the brakes on time-consuming introductions and trivial formalities? Turcat's achievement was a notable one and the Harmon trophy event is deserving of better treatment.

Wayne W. Parrish

LETTERS

Emphasis on Safety

To the Editor:

Congratulations on your editorial, "Advertising to Whom?" in the December issue of *AIRLIFT*. You are right on target with your statement that the airline's biggest competitor is the automobile.

If I may cite in point: Last month I wanted to visit my in-laws in Oklahoma. Driving from St. Louis to Oklahoma City meant 12 hours of pounding over the roads, chance of accidents, the little tads whooping it up in the back seat—you probably know the cross-country story of the average family.

Instead, a cooler head prevailed (my wife's), and we flew TWA out of Lambert, St. Louis, to Will Rogers at Oklahoma City.

The cost was not excessive, although I feel the airlines are missing a bet in not promoting more coach service around here.

Instead of driving all day and half the night, we arrived safe, sound and cheerful in the bright sun of early afternoon. The kids were thrilled.

In summary, I saved a couple days of precious leave time, and I didn't have to beat my way over the roads at speeds up to 70 miles an hour. I fear such velocities are beyond the capability of most drivers to handle if anything goes wrong.

Thirty-eight thousand individuals were killed and 1,500,000 were maimed on highways last year. Personally, I plan to avoid this carnage when I can.

Certainly your point is well taken that the airline industry can point their advertising campaigns at this new and profitable market.

To your phrase, "Why not sell speed and price?", may I suggest that of "safety," since most traveling families are roaring along in highpowered automobiles with the back seat full of kids.

RAYMOND L. TOWNE
Lt. Colonel, USAF

Plaudits from Eagle

To the Editor:

Congratulations on *AIRLIFT* which, for those of us in the air transportation business, is now the ideal magazine to keep abrest of this industry's activities.

JOHN H. TRUMP—U.S. Sales Mgr.
Eagle Airways (Bermuda) Ltd.
New York City

Boost for Airport Articles

To the Editor:

Although slightly belated, I would like to tell you at this time what an excellent job you and your staff did on the recent feature stories on the Los Angeles International Airport and the New York International Airport.

It is articles like these that will help not only other segments of the aviation industry but Congressmen and Federal officials as well as the public become better acquainted with the magnitude of the airport development program going on in the world today.

This is a critical and unbelievably large airport modernization and construction program which is bringing airport facilities in line with the explosive growth of air transportation since the end of World War II.

Like all huge construction programs it takes a great deal of financial and technical planning to achieve these results; this is being done in spite of a vacillating federal policy on the development of a national system of airports and a sometimes less-than-cooperative airline industry in defining their needs for the immediate and more distant future.

E. Thomas Burnard
Executive Vive President
Airport Operators Council, Inc.
Washington, D.C.

BOOKS

Dictionary of Aeronautical Engineering, J. L. Naylor; Philosophical Library, 15 East 40th Street, New York 16, New York; $10.00. A 318-page dictionary which covers aeronautical engineering from Aerolineas Argentinas Empresa del Estado to Zooming with brief descriptions and diagrams. Though running the gamut of engineering terminology, explanatory sentences are in simple wordage which should be clear even to laymen.

Flight Engineer Contracts; Rules Service Co., 1001 15th St., N.W., Washington 5, D.C.; $35.00 per year. An annual service for airline flight engineers which analyzes the wording of all contracts between flight engineers and airlines. Arranged for quick reference, service has word index, comes in looseleaf form, and will be kept current as changes are announced.

Airman's Integrated Dispatch Essentials, Melvin E. Peterson; $7.50 (revision service, $20 per year). Produced and copyrighted independently by a United Air Lines flight dispatcher at Chicago-Midway, this annual could be called a Dictionary of Flight Rules and Regulations. It alphabetizes 127 pages (in very fine type) of regulations, each of which receives a few lines of clarification. Current edition is aimed at the commercial airman in the U.S., but an international edition reportedly is in the mill.

AIRLIFTS

• **A small (sales) world.** Amid the fierce competition between Pratt & Whitney and Rolls-Royce for airline jet engine customers emerges a rare but fascinating coincidence. Both concerns have salesmen named Stan Taylor. S. M. "Stan" Taylor is P&W's chief, commercial sales. His namesake at Rolls-Royce of Canada, Ltd. sells the Conway.

• **Quote of the month:** Frank Kolk of American Airlines ribbing Boeing and Pratt & Whitney technicians over their solution-defying problems with 707 water injection systems: "You're excellent scientists, you're good engineers, but you're lousy plumbers."

• **Supersonic stall**—International Civil Aviation Organization's Nov. 26 announcement of a supersonic transport study set a new slow speed record in getting to the press. It was mailed from Montreal Nov. 24, took nine days to make the 502-mile journey to our desk in Washington. Some of our slide-rule jockeys figured that the 216 hr. trip comprised an average speed of 2.3 mph, or roughly the speed of the pony express.

• **Advice to the industry** department: New CAB member Whitney Gillilland (*AIRLIFT*, Dec., p. 63) pronounces his name with the accent on the *second* "ill".

Top Events of 1960

JANUARY

Jan. 18-20—Helicopter Association of America, 12th annual convention, Disneyland Hotel, Anaheim, Calif.
Jan. 21—Aircraft Service Association, annual meeting, Washington, D.C.
Jan. 25-26—Association of Local Transport Airlines, annual meeting, National Aviation Club, Washington, D.C.
Jan. 25-28—Institute of the Aeronautical Sciences, 28th annual meeting, Hotel Astor, New York.

MARCH

March 21-24—IRE International Convention, Waldorf Astoria Hotel & Coliseum, New York.

APRIL

April 5-8—SAE national aeronautic meeting, Hotel Commodore, New York.
April 8—Air Freight Forwarders Assn., annual meeting, Waldorf Astoria Hotel, New York.
April 26-28—Airlines electronic maintenance meeting, Hollywood-Roosevelt Hotel, Hollywood, Calif.
April—AEEC meeting, Hotel Statler, Washington, D.C.

MAY

May 1-4—Aviation Writers Assn., annual meeting, Ambassador Hotel, Los Angeles.
May 2—IATA 13th Technical Conference, Lucerne.
May 10-12—ATA Purchasing Committee, New York.
May 11-14—American Helicopter Society, annual national forum, Sheraton Park Hotel, Washington, D.C.
May 13—IATA Technical Committee, 31st meeting, Lucerne.
May 22-26—Airport Operators Council, annual meeting, Deschler-Hilton Hotel, Columbus, Ohio.

JUNE

June 5-10—ASME semi-annual meeting and aviation conference, Statler Hilton, Dallas, Texas.
June 14-16—Aviation Distributors & Manufacturers Assn., annual meeting, Queen Elizabeth Hotel, Montreal.
June 27-30—Institute of Aeronautical Sciences, summer meeting, Ambassador Hotel, Los Angeles.

AUGUST

Aug. 23-26—WESCON meeting, Ambassador Hotel & Memorial Sports Arena, Los Angeles.

SEPTEMBER

Sept. 6-9—Farnborough SBAC show.
Sept. 12-16—Institute of Aeronautical Sciences, 2nd International Congress, Zurich.
Sept. 15-16—National Association of State Aviation Officials, annual meeting, Wort Hotel, Jackson, Wyoming.
Sept. 20-22—National Business Aircraft Assn., annual meeting and forum, Ambassador Hotel, Los Angeles.

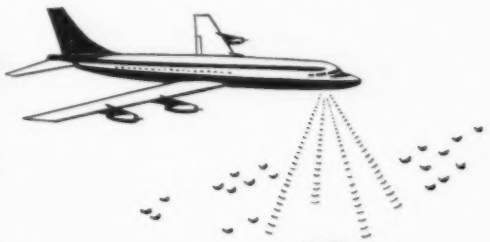
OCTOBER

Oct. 3-7—Air Traffic Control Assn., San Francisco.
Oct. 10-14—SAE National Aeronautic Meeting, Hotel Ambassador, Los Angeles.

DECEMBER

Dec. 6-8—National Aviation Trades Assn., annual meeting, Oklahoma-Biltmore, Oklahoma City.

10 Reasons for selecting Bendix Doppler Navigation!



1. The DRA-12 Bendix* Doppler Navigation System weighs only 61 lbs., and its companion CPA-24 Navigation Computer only 14 lbs. 2. Completely transistorized** for maximum reliability. Only 14 types of transistors are used. 3. Employs fixed, passive, four-beam planar array antenna only 3½" at thickest point—dual system operation requires only single antenna. 4. Utilizes FM/CW Doppler principle to give maximum efficiency at low power consumption. 5. High degree of accuracy in ground speed and drift angle information permanently maintained through use of digital computer techniques. 6. Coherent detection permits operation with signals more than 20 db below noise level. 7. Eliminates altitude holes through use of unique modulation method. 8. Maximum accessibility for maintenance achieved through use of plug-in computer circuit boards and sub-chassis construction. 9. Modulation system, computer elements, and other critical circuitry engineered for expansion into Mach 2 and Mach 3 aircraft. 10. Backed by full line of test equipment and complete maintenance training program. Get full details on these ten reasons—and many others—why you should select Bendix Doppler Navigation. Write—

*REG. U.S. PAT. OFF.
**EXCEPT FOR TRANSMITTING KLYSTRON AND ITS VOLTAGE REFERENCE

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Export Sales & Service: Bendix International, 205 E. 42nd Street, New York 17, New York · Canada: Computing Devices of Canada, Ltd., P. O. Box 508, Ottawa 4, Ontario

Jet Schedules Slow Down

There are significant changes in airlines' winter jet schedules. New York-Los Angeles nonstop, pegged at 5½ hours in early 1959, has been stretched to 5:55. Eastbound schedules are up from 4:30 to 4:45, only 10 minutes less than past summer's 4:55. Even shorter segments, such as New York-Chicago, show 15-minute hike over last April. On-time performance under old schedules wasn't good; new times are more realistic.

Seat-miles continued to outgain passenger-miles in November, as more turbine aircraft went into service. Industry comparison with same 1958 month is distorted because of last year's strikes. But turbine airlines that weren't struck show seats outgaining passengers—American, Braniff, Continental, Delta, National, Northwest. United, with comparatively few jets in service, showed decreases in passengers and seats. Notable exception: Western, whose load factor zoomed as Electras took big chunk of west coast traffic.

Labor Took A Year Off

All's been quiet on the airline labor front, but—watch out for 1960. One pilot contract—Eastern—expires in April, Pan American in August and TWA and United in November. Large number of IAM contracts expire in October (same month the six-airline mutual aid pact expires, unless extended). Ups and downs of labor issues are seen in 1958-59 comparison. Industry lost 215 days of operation from strikes in 1958, only 17 in 1959.

Future of Fairey Rotodyne is in doubt. Company has told the British government that it must have additional financial assistance to meet development costs. New York Airways signed letter of intent to purchase five of the convertiplanes.

Now Airfreight Lures the Rails

A railroad is primed to sell airfreight for a cargo line when rates get lower. Flying Tiger president Robert Prescott reveals that New York Central didn't buy $5 million worth of FTL convertible notes (*AIRLIFT*, Dec.) "simply as an investment." He notes that at coming lowered airfreight rates, NYC can develop substantial tonnage and would like to hand the business over to someone in whom it has a financial interest. NYC could give Tigers' tonnage a big boost. In addition to trains, it operates motor trucks, has majority interest in a large surface freight forwarder.

There'll be a scramble for traffic on the Atlantic this year. Pan American and BOAC were only jet operators during 1959 peak season (PAA's passengers gained 25% in 12 months through October, against 11% increase for other carriers). This year only four lines—El Al, Iberia, Irish, Canadian Pacific—out of 16 will go through heavy traffic months without jets.

Big New Airports Face Rough Going

It won't be easy to get locations for future jet airports. Reason: aircraft noise. Port of New York Authority ran smack into violent opposition to its plan to build a "super Idlewild" in New Jersey. PNYA proposes four 12,000-ft. runways, a 10,000-acre field (twice the size of Idlewild), so there would be five miles between start of takoff roll and nearest community. It predicts Idlewild-LaGuardia-Newark saturation in five years. But New Jersey's Gov. Meyner still hasn't said yes, will probably straddle the fence for some time.

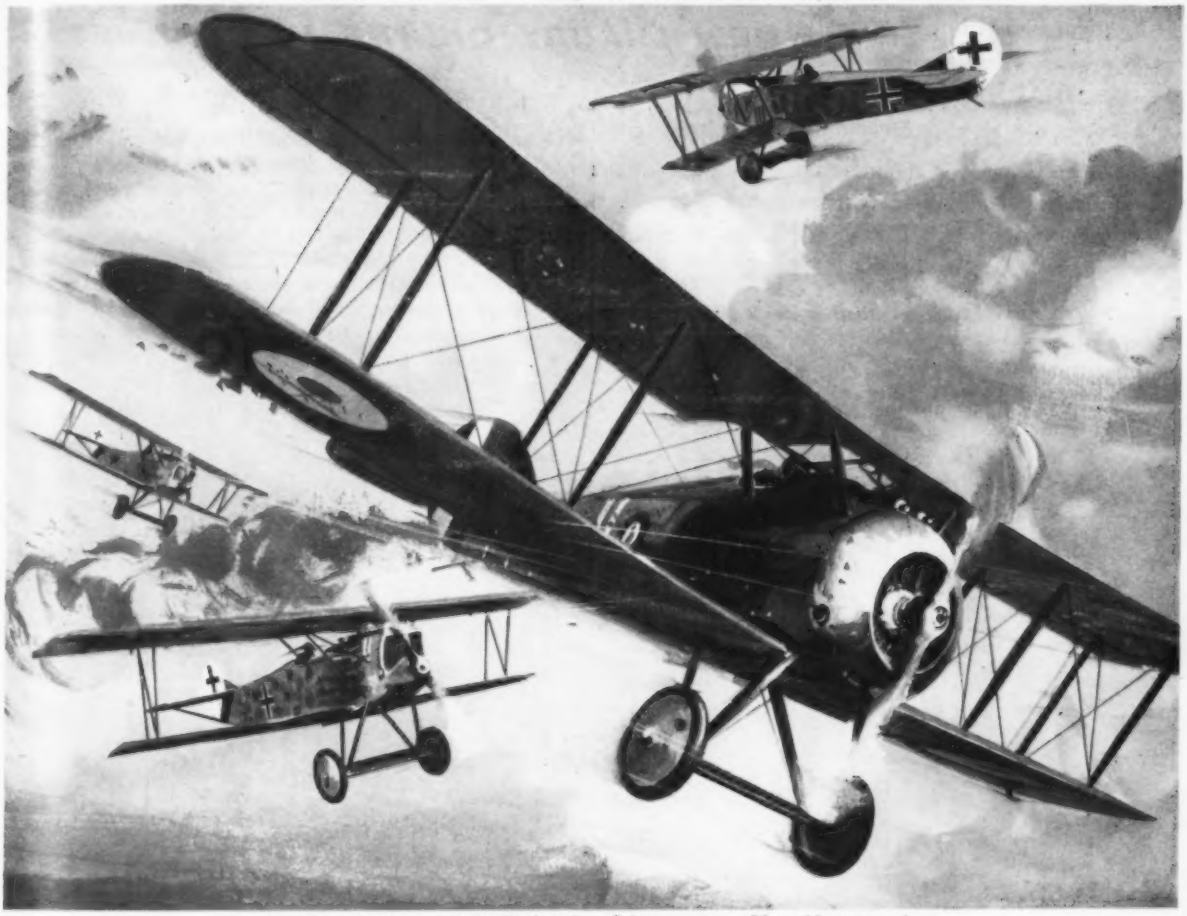
Shooting for 1 million passengers in 1959, North Central Airlines missed by some 4%. When final figures are in, total will be about 960,000, way ahead of other locals. Bad weather and steel strike contributed to near-miss.

More Ramp Service For the Execs

More airlines are waking up to potential traffic available from business aircraft users. American is latest to offer gate space to business planes delivering passengers to its flights or meeting arriving executives. TWA and United previously announced the policy. Exceptions are LaGuardia, Midway, Los Angeles and Washington where gate/ramp space is severly limited.

Airline safety curve slanted upward in '59, but still fell short of one fatality per 100 million passenger miles. Domestic carriers incurred 198 fatalities for rate of 0.78 and international 59 for 0.95 rate. Combined operations, based on a conservative 31.5 billion passenger miles flown, realized a rate of 0.82 fatalities per 100 million passenger miles.

For a 14" x 10" lithographic print, suitable for framing, write Aviation Division . . . Request Historical Series #2.



An epic air encounter . . . Major Barker, in a Snipe, engages 50 to 60 enemy planes.

Early War Birds—THE SOPWITH 7F.1 SNIPE

This British plane, the last of the rotary-powered Allied scouts produced during World War I, appeared about three months before the Armistice. Powered with a 230 h.p. Bentley B.R. 2 rotary engine, the Snipe had a top speed of 121 m.p.h. at 10,000 feet, a service ceiling of 20,000 feet, and an endurance of 3 hours. Like most rotary types, it was quick and possessed tight turning ability.

No discussion on the Snipe would be complete without mentioning Major William G. Barker and the heroic fight of this Canadian against overwhelming odds. Barker, a veteran of both the Austrian and Western Fronts, had been ordered back to England for a training command. On the morning of October 27, 1918, he took off by himself . . . having decided to combine his last offensive patrol with the flight to England. At 20,000 feet he engaged first a German two-seater and then a Fokker. He got them both . . . only to find himself surrounded by some 50 to 60 German planes. There was no choice but to fight his way out. He kept the Snipe twisting and turning . . . firing as targets came into his sights. Thousands of bullets streamed down on him, riddling the Snipe and wounding Barker in both legs and one arm. Still he fought on . . . knocking down four Fokkers. Finally he managed to get away and crash land his crippled Snipe just behind the Allied lines.

In what was one of the most outstanding exhibitions of aerial "dog fighting" of the war, Barker had shot down four enemy aircraft with two more listed as probable. Major Barker was awarded the Victoria Cross . . . and the Snipe became the most talked about plane during the closing weeks of the war.

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JET MAINLINER, BY DOUGLAS

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THE BEST OF THE JETS . . . PLUS UNITED'S EXTRA CARE

The Red Carpet® Room runs the full width of the cabin—largest lounge in the sky.

A Closer Look at the Caravelle

The airline that comes up with the airplane that captures the lucrative New York-Chicago market two years hence will be a big winner and United Air Lines' strategists are back taking a longer, closer look at Sud Aviation's popular twin-jet for just such an assignment. But it's not simply New York-Chicago, it must be LaGuardia-Midway.

UAL is negotiating for 20 Caravelles for delivery in the spring of '61. Engines would be Rolls-Royce Avons with reversers. Designation would be the Caravelle 6R and United presumably would install a complete new interior (probably Raymond Loewy), Douglas Palomar seats, and a new cockpit layout. If UAL buys, its first airplane would be about No. 62 on the line at Toulouse.

Top FAA Job Shakeup

Rumblings of a major split between FAA Administrator E. R. Quesada and W. B. "Bill" Davis, who holds the powerful post of director-bureau of flight standards, apparently will bring an early departure of Davis from that job. A conflict in personalities is being cited for the Quesada-Davis split.

Industry observers, meanwhile, await with interest and apprehension the naming of a replacement for Davis. Under a regional shakeup last month, Quesada recentralized FAA's far-flung authority in his Washington staff, much of which falls to the director of flight standards.

As part of this reorganization, regional administrators in the U.S. are downgraded in stature to housekeeping posts as regional managers.

Capital Leases DC-6Bs, Seeks Financing

Capital Airlines will lease seven DC-6Bs from Pan American and has an option on four others as the result of an expedited program that may put the aircraft in service as early as Jan. 15. The carrier negotiated deals with both American (actually Fred B. Ayer, broker) and PAA and concluded the Pan Am lease late last month.

On the financial side, it paved the way for an $8- to $8.5-million sale of common stock to underwrite its purchase of Lockheed Electras and Convair 880Ms. It also intends to borrow $41 to $42 million in insurance and bank money to round out its financing program.

Comeback by Slick in October

Slick Airways, which suspended common carriage cargo flights in February 1958, will resume service next October whether or not it is made eligible for subsidy. So testified Slick officials in CAB's Domestic Cargo-Mail case, in which cargo lines are asking permanent certificates and subsidy eligibility.

During the first year, Slick will fly a C-46 and six 1049H Constellations, would break even at 72.5% load factor but expects 60-65%. At 60% it would lose $1,042,000. By April 1962, Slick hopes for a fleet of four Boeing 735 cargo jets and four Canadair CL-44D tuboprops.

However, it said that obtaining $60 million for equipment would be impossible without a permanent certificate and extremely difficult without subsidy eligibility.

FEIA's Future in the Balance

Far reaching National Mediation Board decision in the United Air Lines' representation battle between Air Line Pilots Assn. and Flight Engineers International Assn. won't come as soon as expected. The case recessed Dec. 11, won't resume until Jan. 5 and will take the better part of this month for remaining testimony plus a 10-day period allowed panel for decision.

At stake is FEIA's future at United, possibly its existence in the industry. If NMB upholds ALPA's claim that flight engineering does not constitute a separate class of work, a pilot victory at UAL is a foregone conclusion. Bolstering FEIA's battle are the IAM, Transport Workers Union and Air Line Stewards and Stewardesses Assn.

CAB Wrong Again, Court Rules

In the heat of an airline competition for CAB awards for a southern transcontinental route, the U.S. Court of Appeals complicated the entire situation by ordering CAB to consider a 14-month old grant to TWA to operate one-stop service between the west coast and Florida. TWA, which had been operating the service for a full year, promptly asked for a stay of effective date of the decision pending an appeal to the Supreme Court.

The court did not question the validity of TWA's award from St. Louis to Miami. It confined its action to the transcontinental one-stop service it permitted, ruling that the Board could not hear an *area* case and, without more evidence, make a *transcontinental* award. This same court denied petitions of Eastern, American, Delta and National a year ago thereby enabling TWA to inaugurate the service, but the carriers also asked the court to review the case.

FAA Acts, ALPA Reacts

There's no apparent let-up in sight for the running battle between airline pilots (via ALPA) and FAA Administrator Quesada.

Although the "stay in the cockpit" dispute has dissipated, FAA's age-60 retirement legislation appears good for a drawn out legal contest. ALPA jumped the gun with its opposition statement, issued a press release the day before FAA published the rule. ALPA will take the issue to court and, many contend, could win a stay.

Then, not to let an opportunity pass, ALPA followed a day later with another blast labeling as "insufficient" and an "ineffectual compromise" an FAA regulation on pilot training programs and copilot proficiency checks. The new rules go into effect on Jan. 1, 1961, but airlines must submit training programs for approval by May 1, 1960.

Allison Convair Gets a Vote

Following a new concept of aircraft evaluation pioneered by Allegheny Airlines with its Eland Convairs, Lake Central Airlines took on the Eland's competitor, the Allison Convair, and came away from a 10.8-hr. trial much impressed.

So reported Robert W. Clifford, LCA's v.p. operations, citing the turboprops speed, load capacity, and ability to conform with ATC patterns and flight procedures. The trial covered 2,829 miles on 28 route segments producing an average speed of 261 mph.

FAA Lowers the Boom

To erase any doubts that its enforcement policy is not just a passing fancy, FAA continues to maintain a vigorous record of levies against rule violators. The latest recipients:

Overseas National Airways, $4,000, for a series of pilot qualification and flight time violations between May and November, 1958; **Pan American,** $1,000, for maintenance failure which caused loss of two wheels during a 707 Idlewild takeoff July 11; **Capt. A. J. Peacock,** West Coast Airlines pilot, $250, for continuing to fly his F-27 after a tail-low landing damaged the tail skid and supporting structure; **Delta Airlines,** $500, for an inadequate maintenance in-

More news on page 16

spection of cowling; **Central Air Transport, Inc.,** $300, for violation of regulations establishing minimum duty aloft and flight deck tours per 24 hr. period; **Capt. H. J. Peterson,** $100, for exceeding maximum 24-hr. duty time in flight in a Twentieth Century-registered aircraft; **Capital Airlines,** $500, for flying Viscount with inoperative generator; **Capt. William H. Benge,** Transocean Air Lines, $125, for accepting aircraft without radio equipment for frequencies needed in South Pacific area.

Tempest in the File Drawers

FAA's cost-cutting plan to transfer its entire Examination and Records Division from Washington to Oklahoma City drew fire from AOPA who claims the Division's unique statistics are used by many aviation service organizations "based in the Washington area." FAA cites "equal efficiency and less cost" as its motivation for the move, slated for the "next few months." Maybe, says AOPA President J. B. Hartranft, Jr., but moving the division "halfway across the continent, remote from its users" would result in "continuing increased communications costs for government agencies" as well as inefficiency and higher costs for industry.

On Again, Off Again Oxygen

Two days: that's how long FAA's directive to keep one pilot on oxygen when operating jets above 25,000 ft. has lasted so far. The order was just one of a long series, aimed at preventing anoxia—oxygen starvation—due to rapid cabin decompression at high altitudes. But jet operators claim the rule is unnecessary, state that it might, in fact, hinder "crew coordination." FAA has postponed further action on the subject until Feb. 1, reportedly may include in-flight tests in a restudy of the problem.

PNYA Bets $4 Million on Cargo

The Port of New York Authority dedicated a $4 million air cargo center at Newark Dec. 3, to take "greater advantage of the increasingly more productive sky." These were the words of ATA Traffic-vp. Robert L. Turner whose dedication speech bid strongly for more air cargo from business. The three single-story buildings at the north end of the field offer 108,000 ft. of storage space. Two can handle four planes each, the third will take seven, and each can accommodate 24 trucks. There's also a 28,000 sq. ft. service building.

While Industry Talks . . . Raytheon Acts

Squeezing the nation into a single marketing area, Raytheon's newly-inaugurated "Unimarket" will employ airfreight to cut pipeline time as much as 13 days, eliminate three field warehouses, and slash some $2 million from inventory duplication. The electronic system employs a Western Union automatic private wire, electronic data processing for inventory control and machine accounting, and American Airlines airfreight for 24-hour door-to-door service to all U.S. distributors.

Anast Revamps FAA R&D

The return of James Anast as FAA's R&D chief has been felt as word comes of an administrative reorganization which creates 10 divisions to replace the previous six. Five are "program" divisions: Research, Test and Experimentation, Systems Engineering, Development, and Air Defense Integration. The other five are "staff" units: Plans, Operations, Contracts, Budget, and Administrative Services.

New chiefs, to date, are: Dr. Richard H. Jordan, Research; James H. Mollenhauer, Air Defense Integration; William E. Jackson, Development; Albert Brown, Plans; John A. Donahue, Contracts. One former division chief, Hans Giesecke, becomes chief scientist of the Test and Experimentation Division.

Boeing 707-320 Recertificated

FAA has handed the Boeing 707-320 Intercontinental a 500 ft. shorter runway restriction in a recertification which eases weight-runway restrictions and effectively extends the big jet's range at maximum load.

Drawn-out retesting of takeoff performance at Edwards AFB enabled FAA to scale down the admittedly "conservative" weight-runway restrictions imposed last August. With no wind on a standard-temperature day at sea level, the big jet now must have 10,600 ft. of runway available in order to take off at maximum gross weight of 301,000 lbs.

New on the Order Books

SALES: Royal Canadian Air Force: two Vertol V-44 helicopters for delivery in March. **Sabena:** four Caravelle type six aircraft, delivery in February, 1961. Order makes 59 sales for Sud Aviation. Fifteen have been delivered, 23 optioned. **Northwest** is placing a supplemental order for five additional full jets, will order six more if it gets requested additional transpacific route authority. Company now has 23 jets and turboprops on order, will receive five DC-8s next summer. **Transamerican Aeronautical Corp.:** two Electras, delivery in 1961. Aircraft will be available for lease to carriers or executive aircraft users. Order boosts Electra sales to date to 172. **Ansett/ANA** has ordered its third Electra, for delivery in 1960. **Chicago Helicopter Airways:** six Sikorsky S-61s. Delivery: early 1961. **Air India:** One Boeing 707 for delivery in mid-1961, bringing its total order to four. **Napier Engines, Inc.** purchased nine Convair 340s from United Air Lines for delivery starting late last month, ending early this year. Also optioned three more for delivery in 1961. Price: close to $4 million. **TRANSFERS: SAS** has sold six DC-6s, with spares, to Aeronaves de Mexico, price undisclosed, as step toward all-jet fleet. Three previously were sold to Guest Aerovias. Remaining 12 will be used by Transair of Sweden.

Briefs

PacAero Engineering Corp. has opened a new engineering and manufacturing plant in Culver City, Calif. as headquarters for technical products. Company designs and produces Spraymat ice protection systems for aircraft.

Walter Sternberg, former National Airlines vp-market development, elected to the board of directors and executive committee of South Pacific Air Lines. He will acquire a financial interest in the carrier, which will begin Honolulu-Tahiti flights in the spring.

Ozark Airlines and ALPA signed an 18-month wage agreement for DC-3 and F-27 equipment which calls for approximately $2,400 extra in wages for F-27 pilots. Now Ozark can use its three F-27's which were grounded until the agreement was concluded.

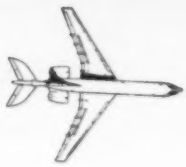
Airport landing fees are on their way up. Instead of 3.5¢, Denver Airport will charge 9.52¢ per 1,000 lbs. takeoff weight. Boost will mean $70,000 per year extra.

Trans Canada's first Viscount, which inaugurated turbine travel in North America Apr. 1, 1955, last month logged its one-millionth air hour. TCA operates 50 Viscounts on domestic and trans-border routes.

Butler Aviation, aggressive aircraft service firm, has expanded its holdings by acquisition of Skymotive, Inc. at Chicago's O'Hare Int'l Airport. It now has 10 installations.

Jack E. Gallagher, v.p. operations, New York Airways has reversed plans to join Omega Aircraft Corp., will remain at NYA in same post concentrating on new equipment planning. Les Carter becomes asst. v.p.

THE SHAPE OF THE FUTURE...



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because...

the engines are in the right place

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- Wing has higher lift and lower drag—assuring superior airfield performance and better high mach characteristics
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With all these—and many other—advantages, *rear-mounted* engines represent a momentous step forward in jet age design.

For complete data, contact Christopher Clarkson, U. S. representative, Vickers-Armstrongs Ltd., 10 Rockefeller Plaza, New York 20, N. Y.

VICKERS VC 10

Four rear-mounted Rolls-Royce Conway By-Pass Turbojets

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A year-end appraisal

1960 Forecast: $2.9 Billion Gross

By ERIC BRAMLEY

AFTER RACKING up the biggest revenue gain in their history during 1959—the first full year of the turbine transports—U.S. airlines start 1960 with the expectation that the year will produce some $2.9 billion in gross revenue, and that for the first time passenger revenue alone will top $2 billion.

However, although the signs point to substantial revenue gains, what will happen in the profit department remains an unknown quantity. Even in 1959, the domestic trunks did not improve the ratio of profit to revenues (only 2.9%). And 1960 promises to be the year of the big competitive struggle. U.S. lines already have 85 jets and 228 turboprops. They're scheduled to get 155 more jets and 39 more turboprops in 1960—and still more in 1961-62.

Available seat-miles will take a big jump, and turning them into a satisfactory number of passenger-miles may prove a next-to-impossible job despite an all-out sales effort. Already, for example, there are 885 nonstop jet seats for sale each day each way New York-Los Angeles, 990 Chicago-Los Angeles—and more to come.

AIRLIFT'S estimate is that 1960 passenger revenue of all U.S. lines—domestic, international, local service, helicopter and Alaskan—will exceed $2.3 billion. Fast-growing airfreight should bring in $185 million.

The revenue gain in 1960 will not be as large, percentagewise, as in 1959. The 1959 total of $2.6 billion was up 16.2% over 1958's $2,236,335,000. The 1960 estimate is for an 11.5% increase. However, 1958 was an abnormal year, affected by recession and airline strikes, accounting for the big 1959 gain. Here's the 1959 picture:

Domestic trunk: Revenues gained 18.2% to $1,789,000,000, but expenses were up 18.7% to $1,684,000,000. Operating profit was $105 million, with net of $52 million. In 1958, operating profit was $94,533,000 and net $44,709,000. Percentage of net to operating revenues in 1959 was 2.9%—exactly the same as 1958. The trunks hauled 44.2 million passengers a total of 24,435,700,000 passenger-miles, increases of 11.9% and 14.6%. Passenger-miles in 1958 were up only 1%. Express staged a comeback, gaining 21.5% and airfreight forged ahead 18%.

Local service: Spectacular gains, achieving for the first time four "magic" figures: 5 million passengers, $100 million gross, 1 billion passenger-miles, 2 billion seat-miles. The $119,9[illegible]6,000 gross was up 26.7%, 5,217,000 passengers and 1,[illegible]32,697,000 passenger-miles up 24.2% and 25.9%

Helicopter: Even more spectacular results than local service. The three helicopter operators hauled 354,000 passengers (up 53.9%) 7.6 million passenger-miles (up 56%).

International and Overseas: 5.8 million passengers, a substantial 13.7% increase, passenger-miles up 15.3%, mail ton-miles 9% and cargo 18.7%.

All cargo: The cargo carriers bounced back after a bad year in 1958, when Slick Airways discontinued service. Last year freight ton-miles gained 19.4% to 145 million—but still short of the 1957 high of 155.1 million.

ESTIMATED TRAFFIC OF SCHEDULED AIRLINES 1958 - 1959

(data in millions)

	1958	1959E
Domestic Trunk		
Number of Passengers	39.5	44.2
Revenue Passenger Miles	24435.7	28000.0
U.S. Mail Ton Miles	104.0	114.8
Express Ton Miles	45.9	55.8
Freight Ton Miles	240.5	283.7
Total Revenue Ton Miles	2750.9	3155.6
Local Service		
Number of Passengers	4.3	5.2
Revenue Passenger Miles	820.2	1033.0
U.S. Mail Ton Miles	1.7	2.2
Express Ton Miles	1.8	2.3
Freight Ton Miles	2.2	3.1
Total Revenue Ton Miles	86.6	109.6
Helicopter (data in thousands)		
Number of Passengers	230	354
Revenue Passenger Miles	4885	7620
U.S. Mail Ton Miles	84	85
Express Ton Miles	34	37
Freight Ton Miles	6	12
Total Revenue Ton Miles	598	868
International		
Number of Passengers	4.2	4.7
Revenue Passenger Miles	5974.6	6881.5
U.S. Mail Ton Miles	65.8	71.5
Cargo Ton Miles	128.9	154.5
Total Revenue Ton Miles	873.1	1034.8
All Cargo		
U.S. Mail Ton Miles	2.6	5.2
Express Ton Miles	1.1	1.3
Freight Ton Miles	121.4	145.0
Total Revenue Ton Miles	319.3	321.4

E) Estimates based on reported figures for three quarters; fourth quarter estimated.

Detail figures may not add to total, due to rounding.

FINANCIAL RESULTS OF DOMESTIC TRUNKS

(Millions of dollars)

	1958	1959[1]
Operating Revenues		
Passenger	$1363.0	$1620.7
U.S. Mail	36.1	40.3
Express	16.1	19.8
Freight	57.4	67.8
Other[2]	40.6	40.4
Total Revenues	1513.2	1789.0
Operating Expenses	1418.1	1684.0
Net Operating Income	95.1	105.0
Net Profit (after taxes and interest)	44.4	52.0
Profit Margin on Sales	2.9%	2.9%

1) Based on 9 months actual, 3 months estimated.

2) Includes revenues from excess baggage, charter operations, other transport services plus incidental revenues.

A three-month, 27-item clean-up campaign on the big Douglas jet shows promise of significant drag reduction. Wing slots, new tips and pylon 'bumps' are in the mill, as . . .

Douglas Speeds DC-8 Speedup

By FRED S. HUNTER

DOUGLAS AIRCRAFT Co. expects to net good gains from the DC-8 speed recovery program now being conducted at top pace at Long Beach. Today, it's a 27-item project.

Flight testing, which started last October and is scheduled to run into January, is being performed with the No. 7 aircraft.

This is a Pan American airplane equipped with Pratt & Whitney JT4A-3 engines. These engines develop 15,800 pounds of thrust dry. An uprated version, the JT4A-9, boosting maximum takeoff thrust to 16,800 pounds dry, is scheduled to come along starting in January and some DC-8 customers have ordered them to obtain the greater power.

With long-range intercontinental jets sensitive to range and payload relationships, the first objective of the DC-8 speed recovery program is to improve the long-range cruising capability of the new Douglas transport.

If the intercontinental DC-8 should come out 8 or 9% short in maximum range, it would be a hard blow to the pocketbook of such carriers as Japan Air Lines, which needs all the range it can get to meet its requirements for long nonstop flights in the Pacific.

Excellent low-speed handling

Douglas has few worries over the low speed characteristics of the DC-8. These are excellent, enabling the Santa Monica manufacturer to claim a decided edge in takeoff and landing distances. As a matter of fact, Douglas is saying the benefits at lower speed actually are sufficiently outstanding to balance off the high speed problems it is having. Douglas also makes it plain that no matter what aerodynamic changes it may try, nothing will be done to the DC-8 that will in any way degrade the superior handling characteristics of the aircraft.

Speed loss is more critical in the JT3C-6 powered models first to fly on Delta and United Air Lines than in the more powerful JT4A-3 version which is to follow and is the version being used in the speed recovery flight test program.

Airlines report actual level flight speed of the presently certificated model at maximum cruise thrust at a 220,000 pound weight at 30,000 feet is 469 knots per hour as compared to a specification speed of 493 knots plus or minus 3%. Eventually, with the general cleanup of the airplane and installation of JT3D-1 turbofan engines, to which most of the JT3C-6 planes will be converted, maximum cruise will be upped to 487 knots, which would be within the original guarantee figure.

Douglas ran into the high speed problem when flight data disclosed that the drag rise incidence, or Mach divergence, at high lift coefficients fell below demonstrated wind tunnel values. The drag-rise begins to show trends in the area of Mach .8 and is critical at Mach .84. The Douglas program is aimed at restoring the drag-rise curves calculated from the original wind tunnel tests.

A number of approaches to this problem are being taken by Douglas and some are said to show promise of rewarding payoffs. Since the drag peaks at the junction of the pylon and wing, Douglas has been working on methods of bringing about a greater reduction in this particular area than it accomplished through the reverse cambered pylons. One way to do this is to add some fairing to the inboard face of a pylon. Douglas first tried small "bumps" but results were not satisfactory.

Wind tunnel investigation indicated better results may be obtained with a larger fairing and plans are now being made for the incorporation of a larger "lump" on the pylon leading edge to smooth out the airflow. It is expected these "bumps" will help materially.

Another improvement in the same area will be the installation of vortex generators on top of the wing, as Boeing did with the 707. These, however, will await the general aerodynamic cleanup of the airplane since the exact location and size of the picket fencing cannot be determined until the airflow pattern has been established.

Also in the mill is a change in flap linkage. This minor adjustment increasing wing camber has the effect of rearranging pressure distribution on the wing. First tests of this so-called "drooped flap" have shown considerable promise. A modified aileron configuration for greater mass balance has been proposed.

New wing tips cut drag

Preliminary reports indicate that Douglas will reduce drag about 2% by a 16-inch wing tip extension of an elliptical configuration. The aerodynamic cleanup should produce an additional 2% reduction and Douglas engineers are hopeful this mark will be exceeded.

The present JT3C-6 version of the DC-8 certificated earlier this year for a maximum takeoff gross weight of 265,000 pounds may be boosted to 273,000 pounds if the modifications work out as expected. The same aircraft with JT4A-3 engines is expected to be approved for 276,000 pounds, and this certification will cover the new wing tips together with leading edge slots earlier selected by Douglas to improve takeoff performance.

Level flight speed of the JT4A-3 version of the DC-8 was specified by Douglas at 511 knots plus or minus 3% for a 220,000-pound weight at a pressure altitude of 30,000 feet and maximum cruise thrust. The modified aircraft being flown in the test program has demonstrated 509 knots. Use of the uprated JT4A-9 engines will increase this to 510 knots.

Range for the slotted and tipped aircraft has been placed at 3359 nautical miles plus or minus 3%. Actual range, assuming reserves, of the present 265,000-pound model is 3285 nautical miles. The proposed 276,000-pound configuration with additional fuel would have a range of 3455 nautical miles.

Staff Lineup for Jets—What'll It Be?

The turbines are here only a year and already two big carriers are reorganizing. Here's what they are doing and what's behind it.

By JOSEPH S. MURPHY

THE FAST FLYING and operationally impatient jet transports are taking their toll of decentralized airline organization. It can't keep up with them.

C. R. Smith thinks so and Juan Trippe agrees with him. Almost simultaneously, these two top executives of the No. 1 U.S. domestic and the No. 1 U.S. international airline turned their tables of organization upside down for a jet-powered housecleaning. Pan Am's became effective on January 1, American's takes over on February 1.

The key names to watch in the new line-ups are Harold E. Gray at Pan Am and G. Marion Sadler at American.

At Pan American it is simply a matter of shrinking a world-wide divisional airline organization in a world that is shrinking in size with jet speed. The Atlantic and Pacific divisions are being joined as a single, "Overseas Division."

Head man in the combined operation is Harold E. Gray, executive v.p. Norman P. Blake, formerly a v.p. under Gray in the Atlantic division, remains a v.p. but reports directly to Juan Trippe. So does Robert B. Murray, Jr. based in San Francisco.

Under Gray in the Overseas Division are John T. Shannon as division manager and G. F. Maxwell, who shifts from Pacific division manager to operations manager of the new integrated division with C. S. Vaughn as his assistant. Manager of ground operations is James Weesner (former Pacific operations manager) with Randall W. Kirk and C. D. Yaggy becoming supervisors of ground operations for Atlantic and Pacific respectively.

Division traffic/sales manager is H. F. Milley (from Pacific) with Dhan G. Mukerji from Atlantic division becoming sales manager-Pacific and Paul T. Rennell for Atlantic. Manager of maintenance is Richard M. Adams; chief pilot, S. H. Miller and pubrel head, D. T. Parsons.

Pan Am will handle all major jet line maintenance and engine overhaul at New York, aircraft overhaul at Miami. San Francisco will become a "line" station as piston operations phase out. Piston overhaul shifts to Miami.

For C. R. Smith, both the decision to reorganize and the results it may bring involve much higher stakes. It means a complete upheaval of a 10-year old regional sales and sales service organization at what probably will prove the most critical period in jet competition—the year 1960.

Both regional operations and regional sales organizations are being dropped. The latter alone represented a combined 120 years of airline sales experience in its five regional v.p.'s (New England-H. J. Lyall, Jr.; eastern-W. N. Bump; central-S. G. King; southern-R. L. Fitzpatrick; western-A. R. Bone). Fitzpatrick becomes v.p.-sales and services. Bone is city manager-Los Angeles.

In lieu of regions, AA will go to a combination of city manager and group manager organization reporting to a new v.p.-field activities, F. J. Mullins. City managers are: New York-W. H. Miller; Chicago-J. J. Lamond; Los Angeles-A. R. Bone; San Francisco-G. E. Coon; and Mexico City-A. Sanchez Llorente.

Heads of groups of AA's 53 smaller stations (group managers) are eastern (W. G. Whitney); northern (W. G. Conrad); central (G. W. Shiles); and southwestern (R. F. Lambert). City managers will be named at all stations and will direct *all* operations of American except flight, properties and community affairs.

In operations, American was probably the strongest backer of the regional control, having a complex of regional operations officers plus staff directors of operations services, maintenance, personnel, and budgets and cost control—all with one man in charge. In this respect, the change at AA is more a return to the pattern throughout industry. But in sales, the concept at AA is a new one. Of the U.S. trunk airlines, only Capital and Delta do not have regional passenger sales, and Delta is regionalized in cargo.

AA's approach to the city manager and group manager is not new to airlines. First airline to adopt such an organization on a wide scale was Capital using a district general manager between 1945 and 1947, but it was discarded in an economy drive to reduce overall operating costs. Another, Northeast, used an "area manager" concept when it first entered Florida service, but this was dropped by president James W. Austin about a year ago.

Many facets of the AA shakeup bear a striking resemblance to the new alignment of Trans World Airlines earlier last year. TWA's organization was studied by consultants Cresap, McCormick & Paget, AA's by McKinsey and Co., Inc. In both instances, a strong sales head took over the operating reins, E. O. "Oz" Cocke at TWA as system general manager and G. Marion Sadler at AA as v.p. and general manager. The dynamic Sadler has skyrocketed from a sales manager at Buffalo to the top operating post in American in little more than three years.

Also similar are the line-ups at American and TWA of staff heads reporting to the president. American named five key areas: finance (W. J. Hogan); planning (O. M. Mosier); legal (George Spater); public affairs (C. W. Jacob) and public relations (Willis Player). At TWA, although there is a more detailed breakdown, all five are represented as staff positions and, in addition, TWA includes a v.p. for equipment retirement and another for personnel and industrial relations.

American's Marion Sadler, new v.p. and gen. mgr. (left); At right, Harold Gray, head of new Pan Am Overseas Division.

ATA committee proposes:

At Long Last, A Cargo-Terminal Plan

FOR THE FIRST time, U.S. domestic airlines have agreed on how a cargo terminal at a major airport should be designed.

With airfreight showing dynamic growth, millions of dollars are slated to go into cargo handling facilities at airports. Design mistakes can be disastrous. In the past, cities have been largely on their own when planning cargo terminals for their airports. Little help was forthcoming from the ultimate users because they weren't together on what they wanted and needed. Frequent result has been inadequate and inefficient facilities.

Now an Air Transport Association committee has come up with guidelines that can be used by architects and planners. The group (airport cargo terminals facilities committee) has drafted minimum requirements, for minimum cost, providing maximum operating efficiency. Its recommendations must be approved by ATA's directors.

The day of the long, straightline, one-building cargo terminal at major airports is gone, it believes. In such a terminal—like the one at Idlewild, for example—an airline located in the middle finds expansion impossible unless it can talk one of its two neighbors out of some space, or unless it rents more space than it needs immediately.

Now favored for big airports is a U-shaped arrangement. Instead of one long building, separate terminals will be located around the U, with only two airlines to a unit. On either end of each building will be land for expansion. In the opening of the U is a building for forwarders, air mail, and carriers that don't operate all-cargo aircraft.

For example, a layout to accommodate 10 airlines would look like this: On each side of the U are two buildings, each 400 ft. long by 80 ft. wide (these figures can be varied according to need). Between them is a 400-ft. strip for expansion, with 200 additional feet available on the outer ends (see drawing). On the bottom of the U is one 400 x 80-ft. building with 200 ft. for expansion on each side. On the outer sides of the structures is a 33-ft.-wide strip for aircraft parking and a taxiway.

Advantages of this arrangement:

Permits an airline to expand without agreement from other carriers.

Provides additional plane parking positions.

Areas earmarked for expansion can be used for equipment storage, other uses, or sub-leased until needed.

Does not require a carrier to lease more building area or parking space than it presently requires.

Area reserved for expansion would be leased at ground leased rate (unimproved) instead of building or ramp rate.

This type of layout will require more acreage (72 acres for the 10 airlines) and building costs would be somewhat higher because more walls are necessary than in a straightline terminal. More paving would also be needed. But these factors are believed outweighed by the advantages offered.

It is also pointed out that a U-shape can be modified into a V or some other arrangement if airport conditions require. Straightline construction—separate terminals with land for expansion between—is also a possibility if available land is limited.

Here are the committee's recommendations:

Truck parking area: overall depth of 100 ft., allowing 75 ft. for maneuvering and 25 ft. for access roadway.

Truck side of terminal: where a variety of trucks operate in the terminal, recommended dock height is 46 inches. No platform between terminal truck doors and edge of dock, because this results in double handling of freight, gives less protection from weather, increases heat loss and affects efficiency of conveyor type floor operations. Canopy should extend outward 12 ft. from terminal and slope into the terminal area to allow drainage toward the building. Overhead truck doors (manually operated spring-loaded) should be 10 x 10 ft. Bays on 24-ft. centers with two 10-ft. overhead doors equally spaced within each bay. Minimum of two rubber truck bumpers per bay.

Warehouse: wood-floated concrete floors—no trowel used—to alleviate slippage of employes and vehicles. Ceiling to allow 14 ft. clear and unobstructed height below heaters, ducts, etc. No interior columns preferred. Each carrier must determine if it wants a built-in weighing scale pit before floors are poured.

Width of building: some 80 ft., others 40 ft., the latter for local service lines (located away from main cargo terminal areas, not staggered within the parent group). One or more 40-ft. buildings located to allow widthwise expansion to 80 ft. No more than two carriers to an 80-ft. building. Doors on aircraft side of building minimum of 12 by 14 ft.

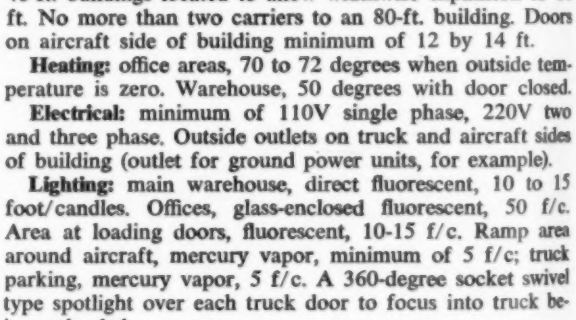
Heating: office areas, 70 to 72 degrees when outside temperature is zero. Warehouse, 50 degrees with door closed.

Electrical: minimum of 110V single phase, 220V two and three phase. Outside outlets on truck and aircraft sides of building (outlet for ground power units, for example).

Lighting: main warehouse, direct fluorescent, 10 to 15 foot/candles. Offices, glass-enclosed fluorescent, 50 f/c. Area at loading doors, fluorescent, 10-15 f/c. Ramp area around aircraft, mercury vapor, minimum of 5 f/c; truck parking, mercury vapor, 5 f/c. A 360-degree socket swivel type spotlight over each truck door to focus into truck being unloaded.

Fire protection: entire building wet pipe sprinklered.

Because of widely differing climates and the different materials available in various localities, the committee did not recommend type of construction or cost. However, officials point out that fancy structures are not needed and that costs can be held to a minimum.



Suggested cargo terminal is shown in *AIRLIFT* drawing.

These three run Eastern: left to right, Capt. Rickenbacker, chairman of the board; Malcolm MacIntyre, president; Laurance Rockefeller, major stockholder. But let there be no doubt about it . . .

MacIntyre *Is* Eastern's New Boss

By ROBERT BURKHARDT

MALCOLM A. (for Ames) MacIntyre has a big job on his hands. As president of Eastern Air Lines, he is boss of about the biggest airline in the free world. Like Eastern . . .

. . . carries more passengers than any other airline: more than 10 million will fly EAL this year.

. . . operates the largest commercial fleet of transport aircraft in the world—226 at this writing.

. . . has nearly 20,000 employes on its payroll.

MacIntyre was named president, chief executive officer, and member of the board of directors on Oct. 1. Ever since Eastern was organized back in 1938, Capt. Eddie Rickenbacker has held the top executive authority. With MacIntyre taking over this key responsibility, Capt. Eddie has concentrated on two basic tasks: being chairman of the board and head of Eastern's operations committee. This latter group is made up of all department heads at Eastern and was formerly called the executive committee.

So far, the new president has not found it necessary to use his big stick. He is a soft talker, but the listener quickly gets the point. He knows the airline business—he is a former counsel to American—and he can be very tough if he needs to. The Air Force brass found this out while he was undersecretary. They learned to listen to him, and to respect his arguments even when he was advocating a policy line they didn't like.

But toughness isn't the big need at Eastern. Any of the company people, from board members to broom pushers, will testify that Captain Eddie has enough toughness to keep two or three airlines well stocked. A more important asset, one that served him well during his government service, is MacIntyre's diplomacy and administrative skill. Eastern's new president is a quiet, scholarly person. With his slight build and academic slouch, he could easily be mistaken for the headmaster of a New England school.

A Bostonian and Rhodes scholar

MacIntyre has the qualifications for the job, too. A proper Bostonian by birth, he was educated at Yale. After graduation he attended Oxford University as a Rhodes scholar. With three years of British book-learning behind him, he returned to Yale to attend the law school as a Sterling Fellow. He did so well at his law studies that the gilt-edged New York firm of Sullivan and Cromwell picked him to fill one of its very few 1933 vacancies.

Ten years later, MacIntyre joined the Army Air Force, as a Lieutenant, and served with the Air Transport Command. He left service in 1946 with the rank of colonel and resumed law practice in New York and Washington. In 1957 he was appointed Air Force undersecretary. He resigned this job last July and was promptly recruited by Captain Eddie and the Eastern board of directors to take over the presidency.

MacIntyre is only 51 years old, and this is an important point in his favor, for the top management group at Eastern lacks some of the youthful fervor of its more active competitors. Captain Eddie, for example, is now 69 years old and next Oct. 8 will have completed his Biblical span of three score and ten. Recent CAB decisions to add two and three additional carriers to each of Eastern's major routes have precipitated a sales and service battle of epic proportions. To cope with this, Eastern needs a quick-footed management team and all the competitive enthusiasm that can be generated. This is one of MacIntyre's most urgent tasks.

Eastern is still very active in the battle for a Southern trans-continental route, too. The outcome of this case will decide whether Eastern will remain a regional carrier, or gain new stature and new business as a coast-to-coast operator as well. MacIntyre has made it clear to his people that there will be no let-down in the company's efforts to get this route until the Board issues its final opinion and order sometime late this year or early next.

Plans salary boost

Eastern has always had a reputation for underpaying and overworking its management people. MacIntyre plans to raise salaries all along the line. His own salary is $80,000 per year, and he has a ten-year contract. This is in contrast with the less than $50,000 paid Captain Eddie. With executive salaries among the lowest in the industry, Eastern has found it difficult to recruit at all levels of management. MacIntyre plans to institute some selective changes in this policy.

The new president is expected to use his authority to good effect in other areas too. Eastern's customers have not always been pleased with the company's austerity policy—studies show that Eastern handles twice as many passengers per ticket agent and counter employe than the industry average. No one at Eastern likes to talk about it, but to the passengers it is all too apparent that service has deteriorated in proportion to the staff overload. "We will emphasize quality of service from now on" MacIntyre has told employes in an all-hands memo. The needed new workers are being hired.

MacIntyre has definite ideas on how Eastern can grow. If a merger with another airline would boost Eastern's average stage length, MacIntyre is interested in talking business. With a very strong financial position—thanks to the Captain's life-long policy of conservative debt management—Eastern is in excellent shape for merger possibilities.

On competition for business and for routes, and on ways for Eastern to improve its customer relations, MacIntyre has very definite ideas. "The sensational 60's are here and Eastern must be ready to take advantage of them," he says.

Wheeling and Dealing à la Howard Hughes,

Onassis Bats Olympic Into Big Leagues

By ANTHONY VANDYK

ATHENS, GREECE—The fact that the initials of Olympic Airways are the reverse of those of its owners, the legendary shipping magnate, Aristotle Onassis, is purely coincidental. So say officials of the Greek flag airlines who are hard put to say anything else about this fabulous character.

The truth is, they know less about the owner of the company they work for than readers of the popular press. The multi-millionaire rarely shows up in his head office in Athens and is simply a name to most of his employes.

Onassis is not even on the board of directors of Olympic Airways. He wields control through relatives and associates from his executive offices in Monaco. He spends little time even there but prefers to control by radio from his yacht on the Mediterranean.

For Aristotle Onassis, the redoubtable "wheeler and dealer," Olympic Airways is simply another deal. Taking over the Greek airline industry was peanuts. Onassis used the same tried and true tactics that gained him power in the shipping world.

A key to his shipping success has been the use of subsidiary companies in "flag of convenience" countries such as Liberia. It's no surprise to discover the two DC-8s Olympic plans to operate in 1961 were actually ordered by a Uruguayan holding company, Ionian Ltd. while the four DC-6Bs that were supplied with Olympic markings are chartered from a Panamanian company called Victoria Financiera Panama S. A.

Onassis' biggest deal was conceived with the help of Lord Douglas of Kirtleside, chairman of BEA and a close personal friend. It involved a consortium agreement between Olympic and BEA providing "for joint operation and commercial exploitation of the two airlines' route networks between the United Kingdom, Greece and the Western Mediterranean."

Comets in early '60

In connection with this agreement, Olympic is to operate a fleet of Comet 4Bs. The deal with de Havilland calls for delivery of two aircraft to Olympic early in '60. BEA will assist with Comet operation and overhaul.

Although details have never been officially disclosed, there is reason to believe that the Olympic-BEA agreement and the Comet acquisition program are part of an even broader conspiracy. This is understood to involve traffic rights at London for Olympic's projected trans-Atlantic service and rights at Athens for BEA and BOAC.

Certainly, this will greatly strengthen Olympic's competitive position. It was apparent immediately after he took over the Greek airline industry in 1957, however, that Onassis was determined to make Olympic a first-class international carrier. He had no qualms about calling in foreign carriers, notably UAT and Swissair, to help carry out his aim.

The Greek airline industry had been at a low ebb. Despite TWA's assistance, the Greek flag airline TAE, founded in 1935, was bankrupt in 1955 and was taken over by the Greek government. With a small fleet of DC-3s and one DC-4, almost no international routes and a pile of debts, TAE was not an attractive entity. The government searched for two years for a taker and ultimately came to terms with Onassis.

Under a twenty-year agreement, now in its third year, the government virtually exempted Onassis from government taxes or customs duty in connection with his airline. Moreover, it waived most of its foreign currency regulations for him.

On the other hand, the agreement imposes certain obligations on Onassis, notably with regard to the acquisition of new equipment and the opening of new routes. The Greek government is particularly anxious to see flag airline service established in the United States and South Africa.

Olympic's present program calls for starting service to South Africa this year and to the United States in 1961 or 1962. Meanwhile, the airline opened an interline sales office in New York.

U.S. is sales model

J. S. Papadakis, long-time TWA sales executive now system sales manager for Olympic, is realigning the sales department on U.S. lines. Sloganed "long-range luxury on short flights," Papadakis' sales organization has managed to hike international passenger load factors well above the low 37.3% achieved in the first year (1958) of operations.

Olympic claims, in fact, that from January 1 to July 31, 1959 it was the No. 1 carrier in number of passengers flown from Athens to Rome (26% of total traffic), to Frankfurt (48%), to Cairo (30%), to Nicosia (66%), to Alexandria (79%), and second in number of passengers carried to Zurich, Paris, London, Beirut, and Tel Aviv from Athens.

Olympic has no plans to replace its fleet of 13 DC-3s and two DC-4s which provide domestic services. Officials speak of keeping the DC-3s for another 10 years. They are all in good shape with an average of 12,500 hours.

The DC-3s and DC-4s are overhauled at Olympic's technical base at Athens while the DC-6Bs currently go to Swissair for progressive overhauls. All engines are sent abroad for overhaul. Comet overhauls will be performed by BEA, but it has not yet been decided which carrier will be entrusted with the overhaul work on its two DC-8s.

For Olympic, 1960 will be a milestone. It takes delivery of its first jet transports (Comets) and opens its first long-haul route (to Johannesburg). And within 18 months it will be pushing DC-8s across the Atlantic.

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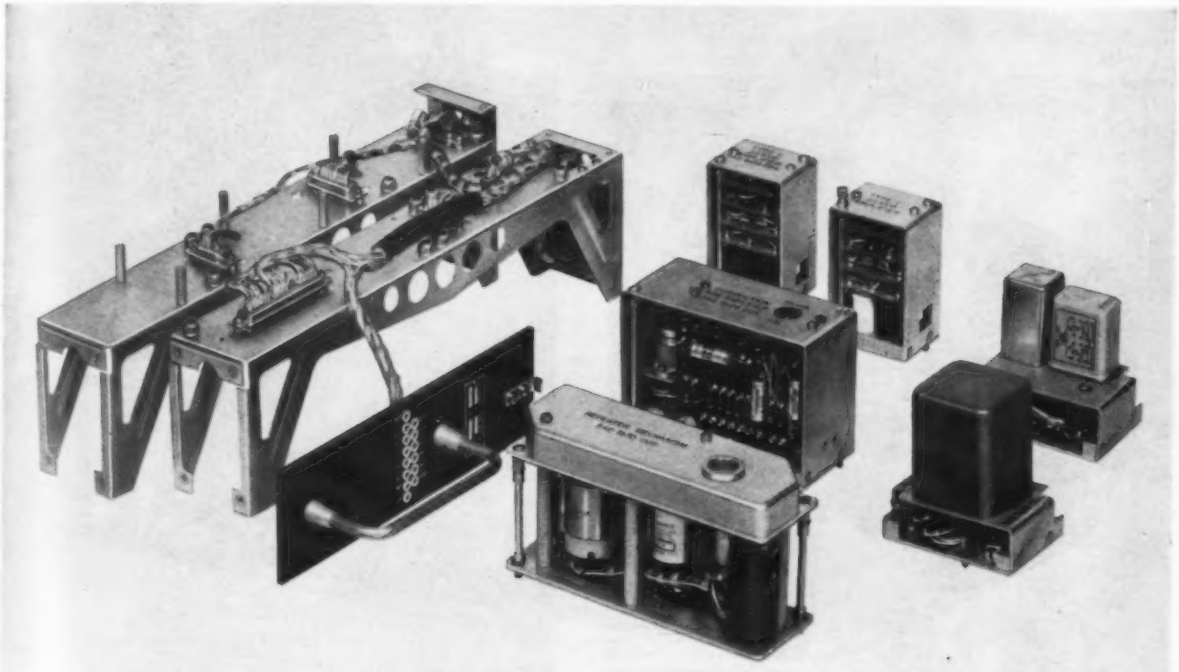

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Labor Speaks

ILO Set to Fight If Air Transport Heads Won't Talk

By OMER BECU
General Secretary, Intl. Transport Workers' Fed.

MOST OF *AIRLIFT'S* "Labor Speaks" articles have been concerned with national industrial relations in the airline industry. In my own organization we have learned, often through bitter experience, that what happens in one country can have serious repercussions outside of national boundaries.

That is, after all, why the ITF exists: to inform transport labor in any country of developments elsewhere which could influence it and, where necessary, to take timely action to prevent such developments from having widespread and adverse effects on labor's position.

From a practical point of view, work in the international field is vastly more complicated than in a national union. In our Civil Aviation Section, for example, we represent every type of aviation personnel, both flying and nonflying. We also have to take into account the special problems, conditions and traditions of workers from many countries.

The same old story

Despite that, when we get down to fundamentals we find that we are concerned with the same basic issues which aviation workers of, say, France, Germany or the United States face in their day-to-day lives.

If I confine myself to flying staff, for example, then it is immediately plain that the problems which we deal with internationally are precisely those which trouble air crew personnel everywhere. We are evaluating the impact of the jet aircraft on airline operations and how in turn the changing patterns of operation will affect the men and women who work on the flight deck or look after the needs and comfort of passengers in the cabin.

Faster aircraft mean shorter flight durations which inevitably lead to greater concentration of effort and strain on those flying the equipment. The same, however, is also true of cabin staff: shorter flights plus increased passenger capacity again result in a stepped-up working tempo and increased danger of fatigue.

Nor is this simply a question of greater aircraft speeds: new aids and techniques in general mean that men and women must adapt themselves to changing situations, and acquire new knowledge and skills.

The fact that the industry is developing so rapidly makes more and more urgent the creation of proper machinery for both consultation and negotiation. We believe, like most others working in this field, that an expanding airline industry must be dynamic. However, we do not feel that the word "dynamic" must be synonymous with "chaotic."

Too little attention has been paid in aviation to the problems of social adjustment which technological progress inevitably brings. It is just not good enough in this day and age for either side of the industry to refuse to discuss, on a national or international scale, the effect which changing circumstances may have on aviation employes.

That is, however, precisely the experience which we of the ITF had at the end of 1956 when, at the first civil aviation conference organized by the International Labor Organization, we found employers opposed to any international agreement on questions like a limitation of working hours for flying staff or the composition of flight crews.

Yet these two problems are without doubt the most vital which concern aviation labor today and their solution, particularly on an international basis, is imperative if industrial relations in the industry are to develop on orderly and harmonious lines.

We for our part are determined that competition between airlines is not going to be carried on at the expense of those employed in the industry. We are just as determined to prevent the growth of bad labor practices or sub-standard conditions in any airline to keep them from spreading.

That is why we have consistently pressed the International Labor Organization to establish permanent tripartite machinery to deal properly with the problems of aviation labor—many of which are still unsolved. It is also the reason why we have worked so hard during the past few years to bring about the greatest possible unity between airline labor unions throughout the world, for it is obvious that if issues such as crew complement—affecting as they do all categories of flight personnel—are to be settled internationally then the unions organizing them must hammer out common policies and go out and fight for them.

Flying staffs unite

I have been extremely glad to note the attention which has been devoted to this theme in previous "Labor Speaks" articles, for it is one about which I feel very strongly. Nor can there now be much doubt that the flying staff has learned the lesson of unity—sometimes the hard way—and is doing something about it.

The best indication of this can be found in the vastly increased number of flying staff unions joining our own organization in recent months—a clear sign that they are realizing the need to join together to solve their national problems through membership in a fighting international trade union. I am confident that this year's ILO Tripartite Civil Aviation Conference will find aviation labor unions of the world more united than ever before. I am equally certain that any repetition of employers' uncooperativeness at this conference will cause many sparks to fly.

That, however, is not our desire. We strongly believe that most of the questions which have bedeviled aviation labor relations for so long must be settled at the conference table. It is in the interest of both management and labor that this should eventuate as soon as possible. It is also in the interest of the traveling public, often the unwitting victim of industrial discord whose safety and comfort is so closely bound up with issues like crew complement.

VISCOUNT OPERATING COSTS AND STATISTICS
3RD QUARTER 1959

	Capital V-745	Continental V-812	Northeast V-745
Crew Salaries and Expenses	23.0¢	19.3¢	18.4¢
Fuel, Oil and Taxes	22.8	22.9	25.4
Insurance	1.5	4.2	7.4
Other	....	....	....
TOTAL FLYING OPERATIONS	47.3¢	46.4¢	51.2¢
Maintenance, Labor	10.3¢	8.3¢	9.9¢
Maintenance, Materials and Outside Repairs	11.1	25.5	16.7
Maintenance, Reserves	....	1.4	.5
TOTAL DIRECT MAINTENANCE	21.4¢	35.2¢	27.1¢
Maintenance, Indirect	10.5	9.3	16.9
TOTAL MAINTENANCE	31.9¢	44.5¢	44.0¢
Depreciation, Aircraft	13.0¢	11.8¢	17.0¢
Depreciation, Engines	3.0	4.2	4.2
Depreciation, Parts and Other	2.3	4.0	3.5
TOTAL DEPRECIATION	18.3¢	20.0¢	24.7¢
TOTAL AIRCRAFT OPERATING EXPENSES	97.5¢	110.9¢	119.9¢
Hours Flown, Revenue	48,556	9,796	7,399
Hours Flown, Training	311	196	81
Hours Flown, Other	328	55	11
TOTAL HOURS FLOWN	49,195	10,047	7,491
Revenue Utilization	9:16	7:13	8:03
Average Fleet Size	57	15	10
Revenue Aircraft Miles	11,842,546	2,585,354	1,647,776
Passenger Load Factor, First Class	58.5%	51.0%	54.8%
Passenger Load Factor, Coach	65.4	....	38.3
Average Seats Per Mile	43.8	52.2	44.0
Average Passengers Per Mile	26.0	26.6	23.8
Cost Per Seat Mile	2.22¢	2.13¢	2.73¢
Cost Per Passenger Mile	3.75	4.17	5.03
Average Flight Length, Miles	347	277	260
Average Speed, Airborne, mph	244	264	223
Average Speed, Block-to-Block	216	235	193
Fuel Consumed, Gals. Per Hour	462	489	464

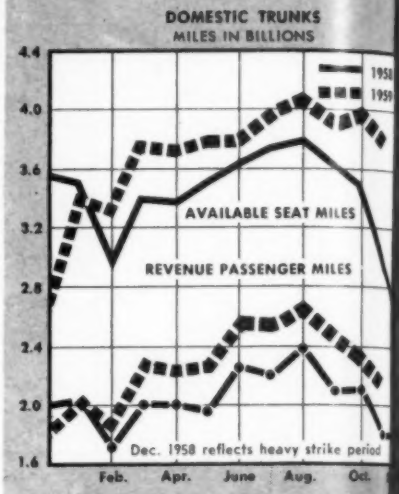
Costs in cents per revenue mile. Data from CAB Form 4 reports.

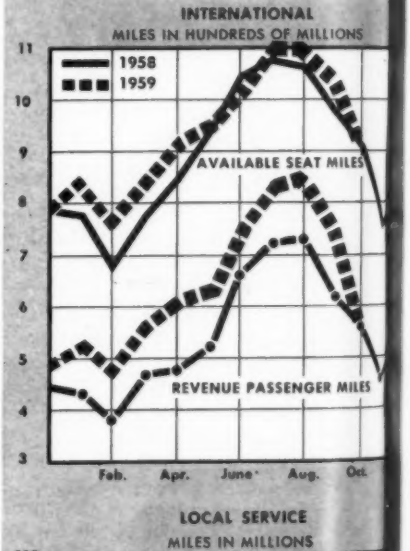
ON TIME BOXSCORE—SEPTEMBER, 1959

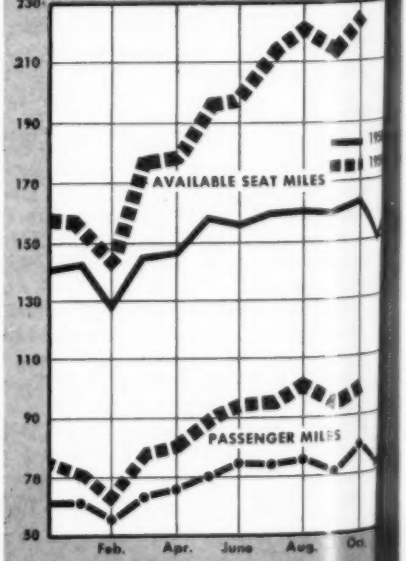
All statistics reflect nonstop and one-stop flights only. Data from airline reports to CAB.

TOTAL TRUNKS	Rank	On Time to 15 min. late August	On Time to 15 min. late Sept.	On Time to 5 min. late	6-15 min. late	16-30 min. late	Over 30 min. late	Total trips reported
American	4	72.4%	72.4%	55.3%	17.1%	12.9%	14.7%	6386
Braniff	3	84.4	77.8	58.5	19.3	10.4	11.8	1575
Capital	7	N.A.	NO REPORTS FILED SINCE JULY					
Continental	6	71.1	69.1	45.2	23.9	13.6	17.3	1229
Delta	11	65.6	64.3	34.6	29.7	21.7	14.0	1663
Eastern	5	68.1	72.2	48.3	23.9	16.0	11.8	5549
National	7	59.4	68.3	45.5	22.8	16.8	14.9	1039
Northeast	8	62.7	65.9	46.3	19.6	14.8	19.3	3026
Northwest	1	59.2	83.6	68.1	15.5	8.0	8.4	1320
TWA	9	65.2	67.8	48.4	19.4	15.0	17.2	3270
United	2	80.9	79.6	58.1	21.5	10.0	10.4	4161
Western	10	62.4	64.8	42.7	22.1	17.8	17.4	1391
BOEING 707 and DC-8								
American	3	36.1%	35.7%	18.7%	17.0%	24.4%	39.9%	916
Continental	1	53.0	47.2	29.9	17.3	16.0	36.8	318
Delta	4	NO OPER	17.3	3.8	13.5	28.9	53.8	52
TWA	2	27.9	39.3	23.2	16.1	22.6	38.1	829
United	5	NO OPER	0	0	0	0	100.0	22
LOCKHEED ELECTRA								
American	1	72.4%	75.6%	56.5%	19.1%	13.1%	11.3%	1231
Braniff	5	74.3	55.7	38.4	17.3	20.0	24.3	185
Eastern	3	67.2	72.3	51.8	20.5	13.9	13.8	1559
National	4	41.4	62.6	36.2	26.4	19.8	17.6	318
Northwest	2	NO OPER	73.5	48.6	24.9	16.0	10.5	237
Western	6	15.4	21.2	6.5	14.7	33.5	45.3	307
LATE REPORT—AUG. 1959								
Continental—								
System		71.1%	...	45.3%	25.8%	15.6%	13.3%	1228
Boeing 707		53.0	...	25.1	27.9	19.4	27.6	248

HOW'S TRAFFIC
Among U.S. Airlines







U.S. Airline Traffic for October 1959 vs. 1958

This complete summary compiled by AIRLIFT Magazine from Official CAB data.

	Revenue Passengers (000)			Revenue Passenger Miles (000)			Total Ton-Miles Rev. Traffic			% Available Ton-Miles Used	
	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958
DOMESTIC											
American	726	704	3.1	521,709	455,701	14.5	63,174,338	56,395,861	12.0	61.6	60.2
Braniff	187	193	—3.1	80,740	81,913	—1.4	8,979,565	9,004,818	—0.3	46.7	51.1
Capital	337	190	77.4	135,086	76,392	76.8	14,290,733	7,979,036	79.1	52.7	52.4
Continental	109	77	41.6	71,022	37,372	90.0	7,367,662	3,882,733	89.8	39.6	46.2
Delta	262	248	5.6	127,580	116,938	9.1	14,458,703	13,311,312	8.6	49.7	55.2
Eastern	717	669	7.2	357,317	332,241	7.5	37,796,307	34,937,990	8.2	38.6	49.5
National	134	115	16.5	69,595	59,565	16.8	7,707,931	6,599,600	16.8	39.0	42.8
Northeast	99	73	35.6	34,438	24,390	41.2	3,580,254	2,532,259	41.4	35.4	30.1
Northwest	159	149	6.7	114,422	100,892	13.4	13,477,301	11,629,737	15.9	47.5	52.5
Trans World	462	421	9.7	410,842	331,184	24.1	45,549,907	36,045,978	26.4	59.8	59.5
United*	598	626	—4.5	387,490	439,332	—11.8	47,104,836	53,095,289	—11.3	59.3	58.4
Western	154	123	25.2	82,253	62,491	31.6	8,648,090	6,692,084	29.2	52.4	43.4
	3,944	**3,588**	**9.9**	**2,392,494**	**2,118,411**	**12.9**	**272,135,627**	**242,106,697**	**12.4**	**51.9**	**54.7**
INTERNATIONAL											
American	9	10	—10.0	8,968	8,842	1.4	1,136,884	1,171,638	—3.0	54.8	46.7
Braniff	4	4	...	7,549	6,693	12.8	959,296	846,034	13.4	45.9	43.2
Delta	3	4	—25.0	4,022	4,307	—6.6	489,638	532,159	—8.0	...	38.5
Eastern, Overseas	30	26	15.4	43,645	38,084	14.6	4,772,490	4,135,194	15.4	54.4	51.2
San Juan	23	20	15.0	35,739	30,707	16.4	3,892,979	3,314,998	17.4	58.7	52.5
Bermuda	3	3	...	2,499	2,201	13.5	263,088	232,017	13.4	43.5	43.7
Mexico	4	3	33.3	5,407	5,176	4.5	616,423	588,179	4.8	40.4	47.7
National	6	6	...	3,932	4,978	—21.0	504,444	589,895	—14.5	39.7	46.1
Northwest	16	12	33.3	26,599	29,088	—8.6	5,350,295	5,500,960	—2.7	50.8	69.9
Hawaiian	2	1	100.0	5,739	3,788	51.5	641,899	445,473	44.1	45.2	58.6
Panagra	12	11	9.1	16,318	14,454	12.9	2,280,254	2,087,900	9.2	63.6	57.6
Pan American, System	243	217	12.0	380,194	314,873	20.7	53,971,749	45,274,114	19.2	64.8	63.5
Latin American	95	85	11.8	108,284	91,074	18.9	16,479,537	13,887,103	18.7	63.5	61.3
Atlantic	116	108	7.4	166,812	134,010	24.5	22,430,847	18,541,152	21.0	64.9	62.6
Pacific	28	22	27.3	101,077	87,219	15.9	14,416,385	12,380,358	16.4	67.2	68.5
PDX/SEA-HON.	2	1	100.0	5,096	2,669	90.9	575,242	326,941	75.9	38.9	43.5
Alaska	4	2	100.0	4,021	2,570	56.5	644,980	465,501	38.6	46.8	46.8
Trans Caribbean	6	5	20.0	10,222	8,550	19.6	1,599,094	748,016	113.8	88.0	64.2
Trans World	22	34	—35.3	59,349	107,048	—44.5	8,411,080	14,057,307	—40.2	59.2	68.4
United	8	8	...	20,327	19,285	5.4	2,311,541	2,206,534	4.8	65.1	54.6
Western	4	2	100.0	6,448	3,312	94.7	700,317	368,212	90.2	61.6	60.7
	363	**339**	**7.1**	**587,573**	**559,514**	**5.0**	**82,487,082**	**77,517,963**	**6.4**	**61.7**	**62.3**
LOCAL SERVICE											
Allegheny	55	48	14.6	9,759	8,643	12.9	1,007,703	893,394	12.8	47.8	55.5
Bonanza	20	15	33.3	5,076	3,619	40.3	502,873	362,206	38.8	46.4	43.4
Central	15	13	15.4	2,881	2,601	10.8	299,197	271,116	10.4	33.0	32.7
Frontier	29	19	52.6	7,470	4,748	57.3	830,447	549,006	51.3	40.4	51.3
Lake Central	23	18	27.8	3,699	2,997	23.4	379,427	314,730	20.6	48.4	48.0
Mohawk	54	49	10.2	10,578	9,498	11.4	1,068,108	953,438	12.0	55.8	60.0
North Central	86	71	21.1	14,972	11,962	25.2	1,577,592	1,215,889	29.7	45.8	51.1
Ozark	51	42	21.4	8,986	7,443	20.7	937,727	767,220	22.2	48.8	54.4
Pacific	44	35	25.7	10,224	7,619	34.2	1,004,926	748,613	34.2	53.8	50.3
Piedmont	44	41	7.3	9,478	8,437	12.3	951,628	857,476	11.0	49.3	58.4
Southern	24	21	14.3	4,336	3,933	10.2	460,130	411,006	11.9	37.2	41.6
Trans-Texas	27	23	17.4	6,466	5,527	17.0	699,861	585,487	19.5	39.8	44.2
West Coast	33	23	43.5	7,561	4,492	68.3	756,920	444,179	70.4	40.4	50.4
	505	**418**	**20.8**	**101,486**	**81,519**	**24.5**	**10,476,539**	**8,373,760**	**25.1**	**45.8**	**50.7**
HELICOPTERS											
Chicago	22	12	83.3	387	212	82.5	38,246	21,410	78.6	45.8	29.6
Los Angeles	3	3	...	98	108	—9.3	15,875	17,301	—8.2	66.8	60.0
New York	11	9	22.2	210	184	14.1	22,865	20,546	11.3	51.9	45.9
	36	**24**	**50.0**	**695**	**504**	**37.9**	**76,986**	**59,257**	**29.9**	**49.2**	**40.6**
TERRITORIAL											
Aloha	25	12	108.3	3,682	1,672	120.2	302,802	141,434	114.1	53.7	50.6
Caribair	23	17	35.3	1,575	1,194	31.9	171,636	130,428	31.6	67.0	63.1
Hawaiian	34	31	9.7	5,516	8,459	—34.8	657,961	879,795	—25.2	55.3	58.7
	82	**60**	**36.7**	**10,773**	**11,325**	**—4.9**	**1,132,399**	**1,151,657**	**—1.7**	**56.4**	**58.0**
ALASKA											
Alaska	10	8	25.0	7,585	4,116	84.3	1,260,355	684,634	84.1	60.3	40.0
Alaska Coastal	4	3	33.3	410	330	24.2	50,671	42,817	18.3	64.5	68.2
Cordova	1	1	...	255	141	80.9	63,107	50,808	24.2	41.9	46.5
Ellis	4	4	...	268	224	19.6	32,929	26,785	22.9	69.8	74.4
Nor. Consolidated	2	2	...	673	578	16.4	165,375	156,331	5.8	59.4	62.8
Pacific Northern	8	9	—11.1	6,885	7,985	—13.8	1,132,620	1,361,057	—16.8	48.2	63.7
Reeve	1	1	...	886	836	6.0	197,397	212,016	—6.9	61.7	63.0
Wien	2	3	—33.3	719	813	—11.6	185,890	339,247	—45.2	40.2	54.8
	32	**31**	**3.2**	**17,681**	**15,023**	**17.6**	**3,088,344**	**2,873,695**	**7.5**	**53.4**	**54.6**

ALL CARGO

(Ton miles in thousands)

	Mail			Express			Freight			Total Scheduled			Total All Services		
	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change
Aaxico	...	N.R.		...	N.R.		...	N.R.		...	N.R.		...	N.R.	
Flying Tiger	83,910	45,459	84.6	107,847	52,783	104.3	8,652,561	6,730,459	28.6	8,844,318	6,828,701	29.5	10,242,242	14,348,115	—28.6
Riddle	9,017	22,767	—60.4	32,843	40,746	—19.4	2,528,617	2,512,837	0.6	2,570,477	2,576,350	—0.2	2,591,333	5,325,788	—51.3
Slick (C)	...	...	...	...	...	...	...	...	...	...	...	...	6,359,555	1,754,509	262.5
Aerovias	...	...	...	...	...	...	598,665	636,313	—5.9	598,665	636,313	—5.9	724,482	693,350	4.5
Seaboard & Western	516,915	240,759	114.7	...	...	...	2,189,451	1,305,498	67.7	2,706,366	1,546,257	75.0	4,990,320	2,017,895	147.3
	609,842	308,985	97.4	140,690	93,529	50.4	13,969,294	11,185,107	24.9	14,719,826	11,587,621	27.0	24,907,932	24,139,657	3.2

*Decrease due to cancellation of flights on Oct. 30-31 due to shortage of pilot flight time.

CANADAIR'S ALL NEW ALL CARGO "FORTY FOUR" SOARS SKYWARD

FIRST IN FLIGHT, FIRST IN PRODUCTION, FIRST FOR DELIVERY— THAT'S THE SUCCESS STORY OF CANADAIR'S NEW CARGOPLANE

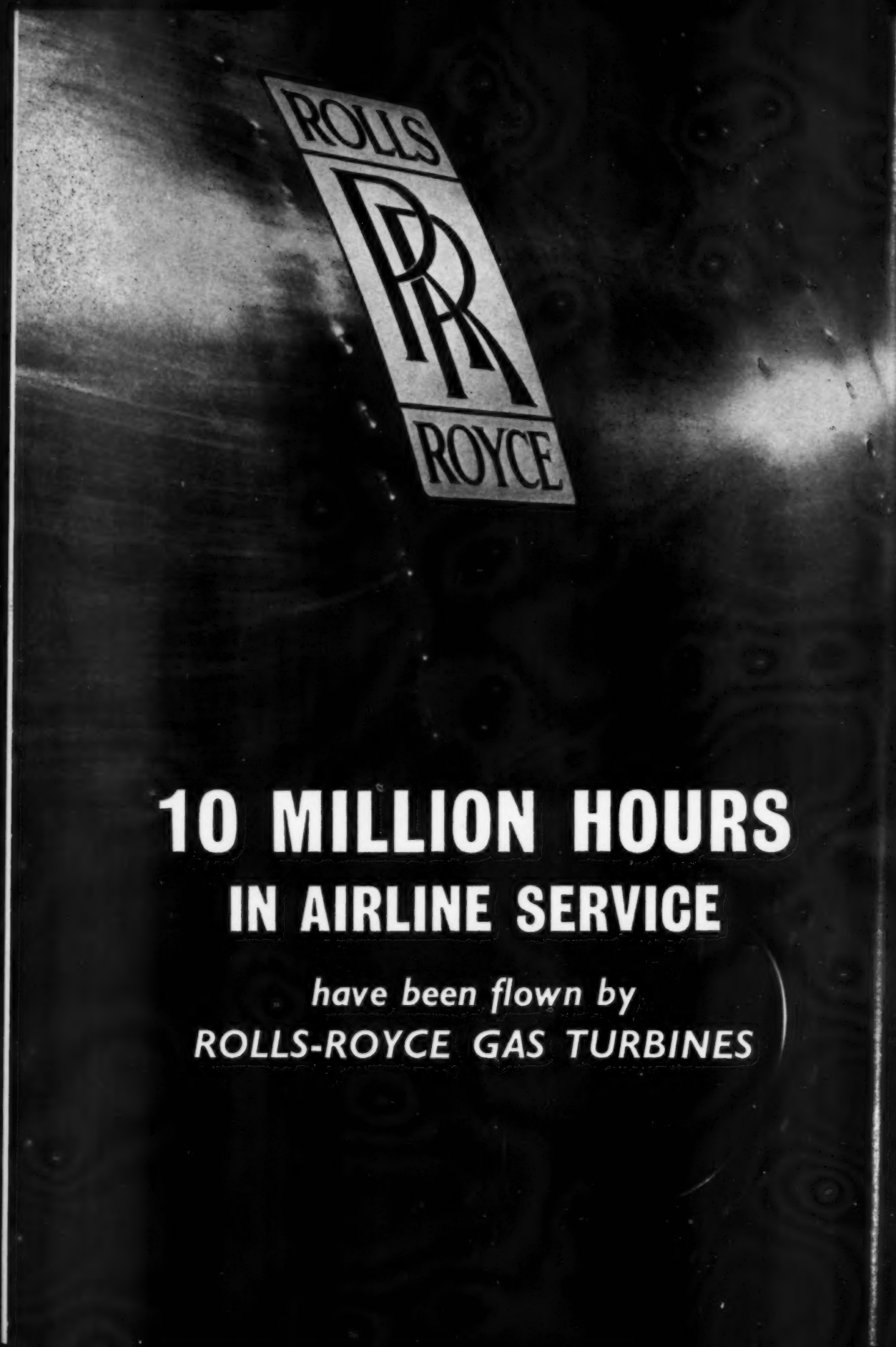
THERE ARE NO IFS, ANDS OR BUTS ABOUT THIS CARGOPLANE! It is here. It is built for use now. Its first flight marked a giant step forward in its development program. The next step will be its FAA type certification, and then the all-new Canadair Forty Four will go into regular air cargo service with The Flying Tiger Line, Seaboard & Western Airlines and the Royal Canadian Air Force.

THE RIGHT SIZE AT THE RIGHT TIME. The present payload capacity of the "Forty Four" is ideally matched to the forecasted cargo requirements of the 1960's. It is in the '60's that the development rate of air freight will climb sharply toward the major breakthrough in air cargo traffic. The Canadair Forty Four is the right size for highly profitable operations during this rising development period.

CANADAIR
LIMITED, MONTREAL, CANADIAN SUBSIDIARY OF

Canadair Forty Four, photographed in flight November 15, 1959

GENERAL DYNAMICS CORPORATION


ROLLS
ROYCE
10 MILLION HOURS
IN AIRLINE SERVICE
have been flown by
ROLLS-ROYCE GAS TURBINES

Wanted for Jets, a Good Hydraulic Seal

O-Ring failures plague big jet operations, Vickers-sponsored hydraulic session learns

DETROIT—If a hydraulic seal manufacturer could come up with a packing that could "live" with Skydrol 500A hydraulic fluid, every airline now operating Boeing 707s and Douglas DC-8s would be willing to scrap its entire present stock of seals.

Sounds far-fetched, doesn't it? Yet this was the educated guess of one of the top hydraulic engineers for one of the top 707 operators in attendance here as Vickers, Inc. sponsored its annual aircraft hydraulics conference.

And although the observation wasn't "on the record" of the official program, the report of Paul A. Hartline, TWA's supervisor of aircraft systems engineering (which was on the record) certainly bore out such a conviction.

Three of the four points urged by Hartline for better hydraulic system reliability on 707s involve seals and packings. The fourth, seeking more pronounced coloring of Skydrol, would aid in detection of leakage. Monsanto has responded to this recommendation by increasing the purple dye content of Skydrol 500A.

Hartline described experiences with relatively low time seal failures (500 to 700 hrs.) in which the deterioration was so great it was impossible to ascertain the original manufacturer. One engineer told *AIRLIFT* of failures in which seal deterioration was so great it was impossible to recognize the original part as an O-ring.

To combat the problem, TWA is resorting to the use of non-standard seals in trouble areas principally involving use of an O-ring and Teflon slipper seal that eliminates the "nibbling" common with standard O-rings.

Biggest problem areas to date have been in spoiler cylinders, brake deboost cylinders and automatic brake adjuster valves. TWA experienced 68 brake adjuster valve removals or 0.51 per 1,000 unit hours; 46 spoiler cylinders (0.34 per 1,000 hrs.) and 17 brake deboost cylinders (0.25 per 1,000 hrs.).

Hartline said an improved seal is also urgently needed for the 707 leveling cylinder rod seals and for the main gear shock struts.

The TWA engineer's plea for a better seal was heard by at least two packing producers. Goshen Rubber Co. and Precision Rubber Products Co., both major suppliers, were represented at the Vickers session.

Electra pump experience

A play-by-play description of Vickers program to reduce premature hydraulic motorpump removals in Lockheed Electras brought this tally of causes in operations of Eastern and American to date:

EAL	Cause	AA
19	Cylinder Pin Bearing	27
16	Open thermal protector	6
—	Contamination Damage	8
10	Excessive Spline Wear	5
5	Slip Tube Leakage	3
4	Pinion Gear	5
4	Rotor Bearing	2
—	Rotor Shaft Sheared	3
—	Pump Thrust Bearing	2
10	Miscellaneous	5
21	No Cause Found	27
89	Total	93

The EAL experience represents 61,865 aircraft hours, but since only one pump in each system operates in cruise, each of the four pumps average only 60% of total aircraft time. This brings EAL total pump time to about 148,000 hrs. and its removal rate to 0.35 per 1000 hrs. This discounts 37 removals for open thermal protectors and "no cause."

TWA's Paul Hartline
Wants better seals.

Pan Am's J. Mackay
Session chairman.

American's record reflects more than 22,000 Electra hours of operation and a pump removal rate of 0.83 per 1,000 hrs. from March to October.

Vickers has come up with a fix for cylinder pin bearing troubles and modified pumps have been failure-free. Effective steps have also been taken to reduce pump spline wear.

A key point of interest at the session was Monsanto's report on Skydrol 500A, a joint paper by Frank H. Langenfeld and Dr. R. E. Hatton. They presented Skydrol specifications for new and used fluid along with laboratory findings on 707 outboard brake samples submitted by Pan American.

The Monsanto officials urged that every precaution be taken during maintenance and overhaul to be certain proper seals and packings are used.

During discussion of 707 service

Testing Used Skydrol

Monsanto's specs for Skydrol and how PAA samples (A to E) checked out

Properties	Fluid Specs.	Used Fluid Specs.	A	B	C	D	E
Appearance	clear purple free of sediment		discolored black specks in fluid	discolored dirt in fluid	OK	OK	OK
Neutralization Number	0.10 max.	0.50 max.	.36	.12	.06	.06	.17
Moisture	0.20% max.		.25%	.30%	.30%	.44%	.45%
Specific Gravity	1.060 to 1.066	1.060 min.	1.0633	1.0625	1.0631	1.0622	1.0630
Viscosity at 100°F.	11.3 cs to 12.1	8.50 min.	9.39	9.34	9.21	9.74	9.37

problems, American Airlines T. C. Moody reported very bad performance with paper filter elements in the 707 hydraulic system. He attributed the trouble to a batch of elements that were inferior from the start. Nevertheless, AA has changed from paper to metal filters in pump pressure lines.

E. R. Baisley, Aircraft Porous Media, Inc. volunteered his company's services to jet operators for free cleaning of one ship's set of APM metal filters to help accelerate establishment of cleaning periods and procedures. Operators should write APM (Glen Cove, N.Y.) for details.

In other conference papers:

- Vickers' staff engineer R. Egge described development work in hydraulic pump cylinder blocks of ductile iron (instead of bronze) for operating in fluid temperatures of 400°F.
- W. Bobier, Vickers chief engineer reported on successful development of a contaminant-tolerant hydraulic pump now being tested by USAF and Navy in supersonic fighter aircraft. It operates under conditions of system contamination that would "fail" a standard pump.
- Hydraulic systems operating at 4,000 psi and with 400°F components will be available for supersonic transports reported John Woodward of Vickers, Torrance, California division.
- Monsanto's Frank Langenfeld said Skydrol-equipped aircraft have accumulated 16 million flight hours without a single fire incident.

Breguet Aims VTOL 940 At Short-Haul Target

By JEAN-MARIE RICHE

PARIS—One of the oldest names in aircraft manufacturing—Breguet—is undergoing a rejuvenation here that promises to shape for it a new role on the world air transport scene.

Henri Ziegler, former president of Air France, is the driving force with a fresh new approach in the redeployment of Breguet's design team. Although still in keeping with the firm's traditional VTOL role (Louis Breguet built a helicopter as early as 1907), Ziegler's contention is that it will take entirely new aircraft concepts for airlines to penetrate the mass transportation market.

The philosophy of Ziegler and company is that the immense untapped shorthaul market potential can be reached only by a simple, reliable and economic vehicle. It must not only fit into the pattern of operations of present air carriers, but also, eventually, of other operators of shorthaul passenger routes.

After years of comparative studies of helicopters, "combined" aircraft and other STOL/VTOL formulas, Breguet decided to take advantage of a relative new-comer among turbines, the 1,000 to 1,250-horsepower turboprop to power a VTOL using the deflected slipstream principle.

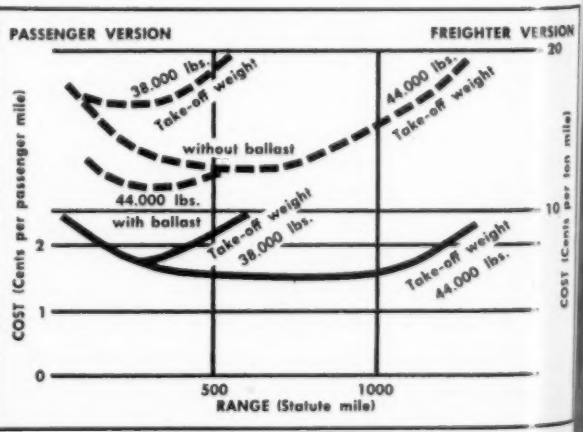
Choice of this design, which combines wing lift (like an aircraft) with propeller slipstream deflection (downward, like a helicopter) was based on the premise that it would give operators the best compromise between the load to be carried and available takeoff space.

The attractiveness of such a vehicle was sufficient to gain French government support for construction of the prototype Breguet 940 "Integral." Using a small quantity of pre-production Turbomeca engines, Breguet took on the tasks of mastering untested engines and proving out the deflected slipstream concept.

Probably the best index of its success came last June at the LeBourget Air Show when hundreds of thousands of spectators saw the Integral dive, flare at low altitude, land almost like a helicopter—then take off in an equally impressive fashion.

This sold French authorities on the idea of building a preproduction prototype, the Breguet 941. Although predominantly a commercially-backed venture, the military potential is best expressed by the comments of a well-known parachutist general after seeing the Integral performance at Bourget, to wit: "When can I get a hundred of these?"

What will the "real thing" look like? Ziegler has selected what, he feels, is



Specs on the Breguet 941

Weights

Max. gross weight	44,000 lbs.
Empty weight (passenger)	23,000 lbs.
Empty weight (freighter)	23,800 lbs
Max. payload (passenger)	11,400 lbs.
Max. payload (freighter-a)	12,100 lbs.
Max. payload (freighter-b)	15,000 lbs.

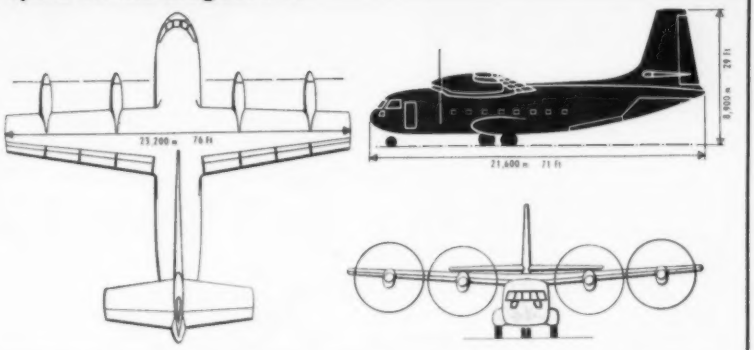
a—without wingtip ballast b—with ballast

Performance

Max. cruise speed	270 mph
Avg. cruise speed	250 mph
Range at max. payload	720 mi.
Takeoff distance @ 44,000 lbs.	720 ft.
Takeoff distance @ 38,000 lbs.	420 ft.
Landing distance	330 ft.

Dimensions

Length	71 ft.	Wing area	890 sq. ft.
Span	76 ft.	Floor area	260 sq. ft.
Height	29 ft.	Cargo volume	1,830 cu. ft.



the best existing powerplant in the 1,000 to 1,250 class, the General Electric T58. Around this engine he has "extrapolated" the well-tested systems of the 940 prototype, including the special flaps and interconnected propellers that give "four engine" safety.

The non-pressurized fuselage is classic, the rear-loading door of the prototype will be used on cargo versions whereas a Caravelle-like rear structural stairs and front stairs are designed for easy ground handling on passenger versions.

For the passenger model, a Breguet 942 will be offered at a later date to operators requiring pressurization.

Being definitely simpler than a helicopter or a "combined" aircraft, and also more economical (see chart), the Breguet 941 aims for better schedule reliability than conventional or rotary wing aircraft. Breguet hopes its approach will at last make possible zero-zero landings and, as a consequence, the "on-time" performance in poor or zero visibility that is inherently needed in shorthaul operations.

Breguet has now started to "cut tin" on the 941 prototype and expects to fly it early in 1961. Ziegler is a firm believer in fast, on-time deliveries and hopes to start production immediately after first flight.

Breguet's plants at Toulouse and Anglet appear ready to take on 941 production. Although somewhat premature for definite pricing, the 941 is expected to sell for 350 million francs ($700,000) fully-equipped in a 40 to 48-place unpressurized passenger version powered by T58s.

And there is cause to support the optimism of Breguet and Ziegler. In Europe, both air carriers and major road transport companies are beginning to show active interest.

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Making way for turbines

Airwork's Split-Shop Plan for Darts

MILLVILLE, N.J.—Airwork Corp., 13-year veteran reconditioner of airline and executive aircraft engines, has come up with a novel, two-base overhaul concept as it broadens its activities to include turbines.

Its year-old jet accessory overhaul shop in Miami and new jet-engine overhaul shop underway here at Millville will be geared to provide Rolls-Royce Dart support for operators extending from Boston to Caracas. Air cargo will link the two facilities.

In addition to overhaul, the two shops will offer field engineering services, accessory and spare parts.

A customer delivering a Dart to Airwork in Miami will have it undergo on-the-spot receiving inspection before it is shipped to Millville for overhaul. Engines will be handled on a five-week turnaround, Miami to Miami, with all transportation paid by Airwork.

The Miami shops will overhaul the fuel control, fuel pump and electrical system. These accessories will then be shipped to Millville for installation.

Miami also will supply exchange accessories, replacement parts or factory-trained service engineering for Dart operators.

An engine delivered to Airwork at Millville will have the key accessories removed and shipped to Miami for overhaul. Since the accessory cycle is only two weeks, about half that of the complete engine, the remote overhaul will not cause a delay.

The eight-state separation of the two-shop operation is unusual, but works to the customer's advantage, Airwork officials point out. The facilities are not duplicated but, rather, augment each other. Complete service will be offered to both northern and southern areas, each having nearby production facilities plus a working knowledge of turbine problems.

Miami's the hub

In all, Airwork spent some 30 months of study before deciding on the split-shop organization. This research showed Miami to be the logical accessory overhaul center, near to the operations of many potential airline customers. This shop went into operation in September of 1958 with a contract from Allison to overhaul fuel controls and datum valves for Model 501 engines on Lockheed Electras. It turned out more than 300 in the first year.

Activities have since been expanded to include overhaul of a-c electrical systems and constant speed drives. Airwork now plans to double the size of this shop in the near future.

At Millville, the expansion to turbines involves a $500,000 investment. By this spring it will provide facilities to take on the Dart, although most of the equipment going into the new shop will handle bigger turbines.

One of the major facets of this program will be the purchase of a $125,000 dynamometer-type test cell, a carbon copy of the design adopted by such airlines as TWA, Eastern and Trans-Canada. And although Airwork will confine its turbine overhaul to Darts until that program proves a success, the new cell will be capable of testing turbines at powers up to 10,000 ehp.

This will give Airwork the wherewithall to include in its future stable a bigger member of the Rolls family, the Tyne, powerplant for the Canadair CL-44D cargo transport.

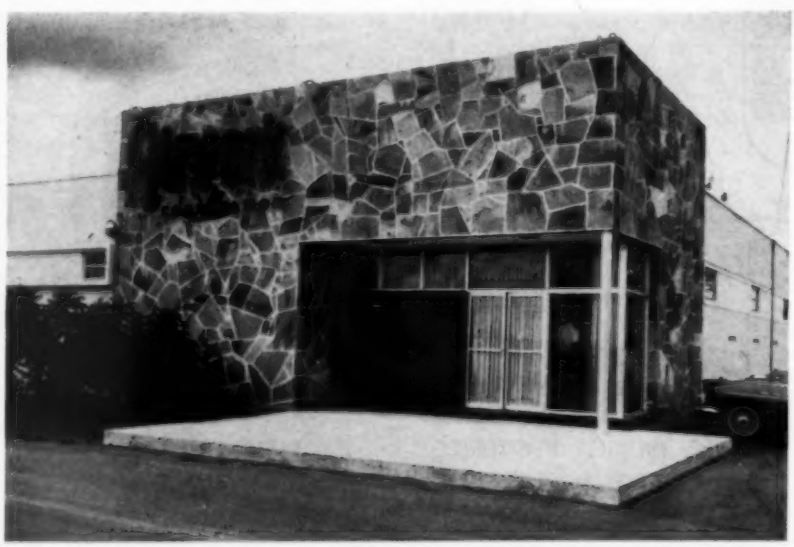
P&W high on the list

To date, a healthy share of engines overhauled by Airwork have been built by Pratt & Whitney. Looking to the future, the aggressive Millville firm has its eye on such upcoming P&W items as the JT12 jet and PT6 turboprop.

A good hint as to how strongly Airwork rates with the folks at East Hartford, obviously a factor in whether it is licensed for jet work, can be taken from P&W's approach to unveiling the PT6. The first announcement that the engine existed, made jointly by P&W and Canadian Pratt & Whitney, was timed to coincide with Airwork's 1959 operations and maintenance forum.

Of all the turbines now seeing service, the Dart is a natural for Airwork and Airwork is a natural for its mixed airline and corporate type use on Viscounts, F-27s and Gulfstreams.

Since it turned out its first overhaul for TWA in 1947 Airwork has swelled its list of airline customers to 18. And of the 7,715 engines it has overhauled as of December, 1959, about 55% were for airlines and the remaining 45% for its executive aircraft customers who now number in the hundreds.



Airwork's Miami accessory shop, in business for 18 months, is first half of split-shop plan for turbines. Engine shop will be at Millville.

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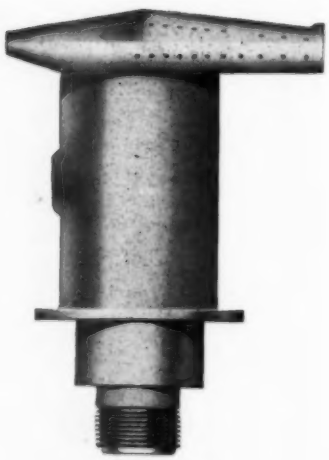

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AIRPORTS

Shutdown Plan at LaGuardia

After 20 years of some of the heaviest airline traffic to greet a U.S. airport, New York's LaGuardia field is getting a major runway rehabilitation.

Using a staggered system of runway shutdowns (many flights are being diverted to Newark and Idlewild) Port of New York Authority will keep one major strip open on this schedule over the next two years:

Runway 13-31—Now closed until sometime next month. It then reopens until Aug. 1961. Shuts down then until Nov. 1961.

Runway 4-22—Now open; will be closed from March until October of this year.

A new 13-31 and rebuilt 4-22 complete with high-speed turnoffs, more taxiways, etc. will be in full service Nov. 1961.

Now Its Pancake Lights

FAA has awarded a $41,154 contract with Ole Hansen & Sons, Inc., Pleasantville, N.J. to install "pancake" runway lights at NAFEC for evalution. They are an outgrowth of the "button" lights used in a high-speed runway study by Univ. of California. FAA is considering the pancake lights in lieu of the Elfaka narrow gauge lights backed by the Air Line Pilots Assn.

BUSINESS FLYING

NBAA Seeks Staff Pilot

National Business Aircraft Assn. is seeking a full-time, pilot-qualified, technical specialist to strengthen its service to members in communication, navaids and ATC matters.

Once named, the NBAA staffer probably will be invited to membership on Aeronautical Radio, Inc.'s Airlines Electronic Engineering Committee as a much-needed liaison in welding the requirements of business aircraft and airline operators in AEEC.

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Contact your local B.F.Goodrich Aviation Products distributor and see how easily you can equip your Travel Air with this low-cost ice protection. (Also FAA-approved for the Cessna 310, Piper Apache, Beech Twin Bonanza and Aero Commander.) Or write: *B.F.Goodrich Aviation Products, a division of The B. F. Goodrich Company, Dept. AL-129A, Akron, Ohio.*

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Now Air France is concentrating these years of jet experience on the new Boeing 707 Intercontinental. This mighty jet is the largest, fastest, longest-range airliner in the world. In fact, the Intercontinental is the first jet airliner designed to cross the Atlantic non-stop in 6½ hrs. between New York and Paris. In swift, silent, vibrationless flight, nothing equals this newest addition to Air France's jet fleet.

Air France is proud of these millions of miles of jet experience. They are more than just a record. They inspire in passengers and crews alike the confidence that comes with the knowledge that Air France has been a pioneer in jet aviation.

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By CAPT. J. D. SMITH

That Noise Headache Is Still With Us

Aviation seems eternally plagued with problems, many of them of direct concern to pilots. The problem of aircraft noise must be termed vicious, not only to pilots but to the entire industry.

The word vicious applies because in spite of all that has been done to alleviate aircraft noise in communities beside commercial airports, the complaints are louder than ever. We must conclude that what has been accomplished is not sufficient.

The aviation industry has invested considerable effort and money to reduce aircraft noise. For years, pilots have tried to tiptoe in and out of high density airports. In spite of these efforts, we are worse off than ever. Why?

Probably the factor most prolonging the noise problem has been the lack of coordinated drive for a solution. For years, noise abatement was given the "button, button, who's got the button" treatment. I've seen some pretty good buck-passing this past ten years, but the aircraft noise problem is the granddaddy of them all.

As far back as the late 40's, it was generally agreed that reduction of aircraft noise at the source was desirable. This proved difficult for piston-engine aircraft, mainly because propeller noise could not be eliminated. However, the industry effort did gain by accelerating climbouts, making higher approaches, adopting preferential runway systems, diverting low level training flights, flying over unpopulated areas when possible, and revising traffic flow and IFR altitude procedures.

Relief for Idlewild

For example, while operations zoomed at Idlewild, our largest complaint a few summers ago had to do with maintenance runups between midnight and 7 a.m., a definite indication that the airport neighbor was finding relief. Civic leaders openly concurred. Application of these procedures elsewhere will prove helpful but will not be a cure-all.

Prior to inauguration of commercial turbojets, it seemed that once-beneficial procedures were losing effect. This was partly due to a boost in operations. But a big factor was the crowding of residential dwellings closer to the ends of runways.

This is still happening. Open, non-residential areas which once permitted effective noise abatement have disappeared at many locations. Fortunately, intelligent planning has kept runway approach zones clear in some areas. Elsewhere, relief comes hard.

In the New York area, for example, heavily-built-up areas are less than 15 seconds flying time from instrument runways. What can be done to reduce aircraft noise for these people?

The issue can't be averted by saying the airport was there first or vice versa. Airports and communities have developed side by side with proper regard for legal procedures. FAA is issuing a draft release containing special noise-abatement regulations for the Los Angeles area. Apparently it is hoped this legal philosophy can be applied to other airports.

Let's have realistic rules

Realistic regulations can be beneficial. Unrealistic ones breed non-compliance for safety's sake, and therefore lose the effectiveness for which they were designed. While such non-compliance may be justified legally, continuation will only bring louder protests for more relief.

The industry was warned of this dilemma back in 1952, in the Doolittle report, which recognized the difficulty of clearing residential areas adjacent to runway approach zones. The report recommended that clear areas then existing should be kept clear. At some locations, this has not happened.

Neither CAA nor FAA have had authority to regulate land use in approach areas. The Doolittle report's recommendations for adequate zoning have not been heeded by all airport operators or municipalities. Thus, creeping encroachment nearer runways negates many advantages obtained through operational techniques.

Newark's in the clear

Substantial relief has been afforded the community surrounding Newark Airport. Encroachment has not taken place at Newark, but it has at LaGuardia and Idlewild, where community protests have increased.

Besides perfecting noise suppressors, we must establish methods which guarantee adequate zoning regulations for approach areas. This program, combined with proper handling of aircraft performance, is the only way to reach a satisfactory solution.

The Mach 2 and Mach 3 aircraft are already on the drawing boards. If people believe the current aircraft noise problem is vicious, wait until they have to live with sonic booms from departing supersonic airliners.

About the author

Our monthly Cockpit correspondent is a Capital Airlines pilot with a record of more than 15,000 hours at the controls. He is an outspoken advocate of pilot safety and a recognized leader in the field of air traffic control. He is regional chairman of ALPA, chairman of the ALPA air traffic control committee and a member of the runway visual range committee, among other duties. Capt. Smith welcomes letters from readers interested in the subjects about which he writes. Address: Cockpit, AIRLIFT, 1001 Vermont Ave., N.W., Wash. 5, D.C.

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EXTRA SECTION

By WILLIAM J. COUGHLIN

• **Has it really been** five years since Scandinavian Airlines System inaugurated its polar route from Los Angeles? That dramatic midnight takeoff in the fog from Los Angeles International on November 15, 1954, is still a vivid memory.

Yet here was Warren Kraemer, SAS Senior Vice President, standing up at the anniversary luncheon the other day telling us what's been accomplished in those five years. Nearly 600-million miles have been flown on the route and last year's load factor averaged an astonishing 79.2 percent. In the year which ended Nov. 15, SAS flew more than one million pounds of cargo over the route, highest volume in its five-year history. Haven't heard anything lately from the people who thought SAS was crazy to start the service.

The annual SAS luncheon to mark the anniversary is becoming quite a tradition for veterans of the first flight. Several of us were recalling the night in a Zurich beer garden when a spotlight was turned on the press group and we were introduced as the "polar fliers." The cheers would have done honor to Byrd or Perry, let alone a bunch of hacks who had done nothing more noble than cross the arctic wastes in an easy chair with a glass of cherry herring in one hand and champagne in the other. Hams that we were, we stood up and took a bow.

Incidentally, the cute little polar bear cub which SAS presented to the Los Angeles Zoo a year ago on the fourth anniversary apparently is growing as fast as traffic on the route. He now stands well over six feet and weighs more than 500 pounds. Please don't write any letters asking me how you weigh a polar bear. Write to Kraemer, they're his statistics.

• **Thought for the month:** ALPA apparently isn't interested in whether there are any bold pilots but it's going to make darn sure there are old pilots.

• **People have asked** me if I did any traveling on Aeroflot while I was living in Moscow. Most of the correspondents there prefer to board a western airliner when leaving the Soviet Union. After the somewhat spartan life in the Russian capital, you can't get back to that decadent capitalist luxury too soon. But I've covered quite a few miles via Aeroflot and have found the service good. I recall one flight on an IL-14, the Soviet "Convairliner," from Budapest to Lvov, Kiev and Moscow. Every landing and every takeoff was on schedule exactly to the minute. It seems to be the communist equivalent to making the trains run on time.

Operating a western airline to and from the Soviet capital is plagued with minor frustrations, as Pan American will find out when the time comes. One night, a KLM flight crew arrived to find their rooms in the Leningradskaya Hotel had been assigned to a visiting Chinese communist delegation. The KLM ground staff had to give up their rooms and sit up all night so the flight crew could have a place to sleep. I remember it well because I stopped by on the way back from the central telegraph office about 3 a.m. and had a steak sandwich with them. The steaks had been swiped out of the locker of the DC-7. After a few months of eating unaged Russian meat, nothing could have tasted as good as that KLM steak!

• **Convair's 880** is going to have a dozen vortex generators on each wing and perhaps some on the tail. Flight testing has indicated that air separation on the trailing edge of the wing results in a small area of travel in which the ailerons aren't as effective as they might be. Hence, the vortex generators. Everyone I've talked with seems delighted with the airplane and it certainly should be a success with the customers. Someone suggested it may even become the DC-3 of the jet age but I doubt if Douglas takes kindly to that comparison.

The instrument CAB Examiner William J. Maden is holding is a genuine Hawaiian poi pounder. When the first phase of the Trans-Pacific Route Case was heard in Honolulu, Western Air Lines president Terry Drinkwater thought Examiner Maden should be equipped to conduct it in native fashion.

• **Speaking of problems,** the people in the missile business run into a few that are different. When Marquardt shipped an ASP missile to Washington for an exhibit at the American Rocket Society Meeting, it was lost en route. It finally turned up—in the moving company's carpet warehouse in Washington. Someone had mistaken it for a rug. To the best of my knowledge, that has never happened to a super connie.

• **Ever get belted** in the chest when you leave your seat because the passenger in front of you neglected to raise his reclining back? Many passengers have. One airline now terminates its pre-landing safety-belt announcement with a request to straighten up the backs. Passengers are quick to comply; when all are out, there's not a horizontal seat in the cabin. The thoughtful carrier: Japan Air Lines.

• **Now that the meeting** is history, it's safe to note that IATA, which stands for the International Air Transport Association, which just wound up its annual meeting in Tokyo, means, in Japanese, "I don't like it."

• **The first Convair** 240 paid a visit to its San Diego birthplace the other day. It's now an executive aircraft for the Garrett Corporation. You'll remember it served for a long while as the Allison Turboliner, both as a test bed and a demonstration aircraft. Garrett bought it from General Motors and put conventional engines on it, with the turboprop powerplants going back to Allison. It's equipped now with an airborne gas turbine in an aft compartment and a beautiful AiResearch interior.

• **Overheard** at Boeing: "No, honey, a Dutch roll isn't what KLM serves with coffee."

• **A friend who** traveled to Washington aboard a TWA 707 the other day tells us that en route the captain announced over the loudspeaker: "Ladies and gentlemen, if you will look out the right side of the aircraft, you will see in a few minutes one of the most beautiful sights in America . . . we are passing a DC-8 which took off from Los Angeles 10 minutes before we did."

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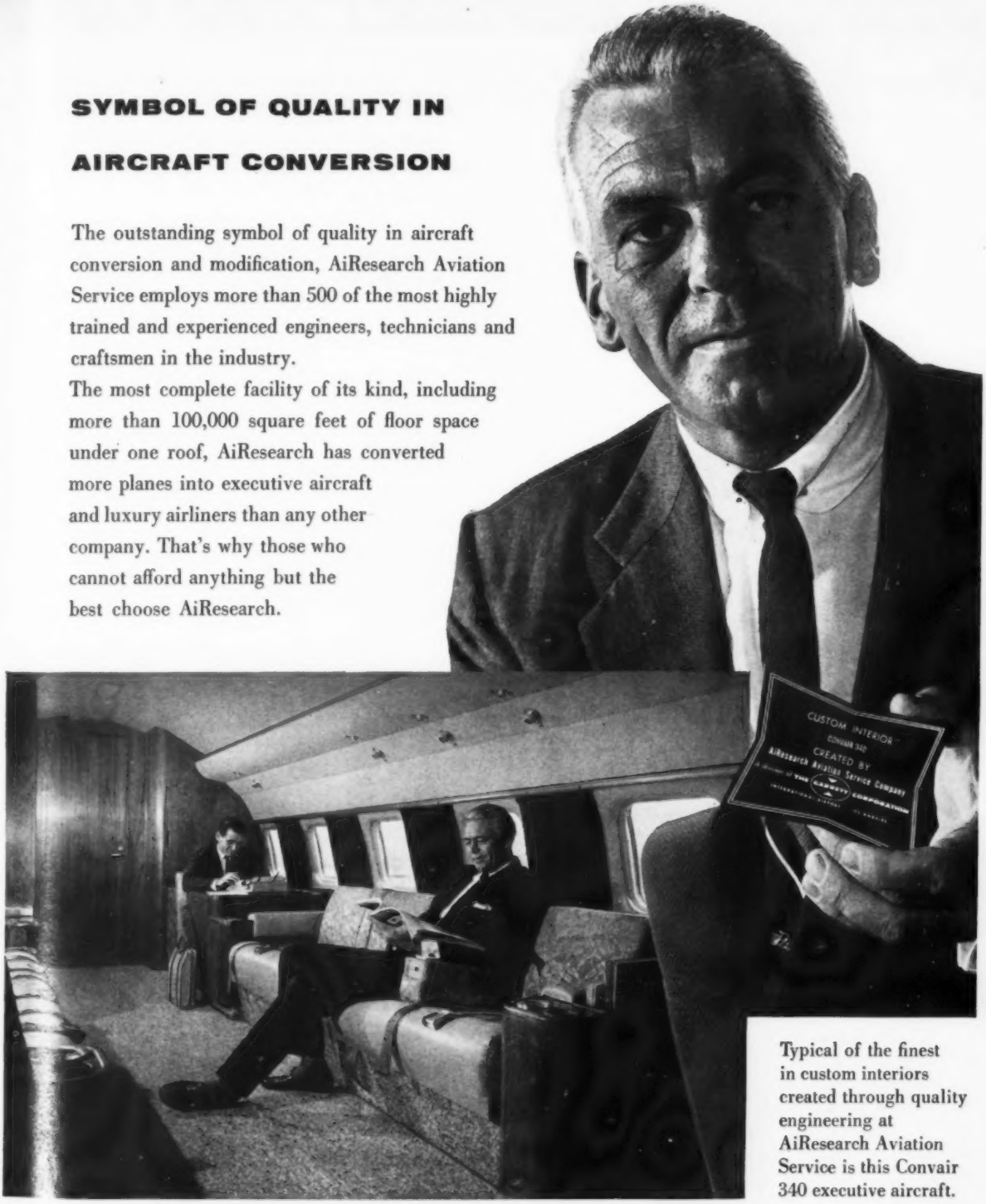

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By MICHAEL DONNE

Hunting for a Viscount Replacement?

Viscount replacements have been a feature of design studies emerging from the British aircraft industry in recent years, although so far, no manufacturer has begun to build such an aircraft.

One of the most promising to appear is the H-107, begun some years ago by Hunting Aircraft and kept up to date in the light of continuing market surveys throughout the world and regular appraisals of engine developments. The H-107 is a short-field, short-haul twin-jet airliner originally having two tail-mounted Bristol Orpheus turbojets, but now being studied with two tail-mounted turbofans of a new class now under development by Bristol-Siddeley Engines.

Few details of this new class of turbofans have been given, but Bristol-Siddeley has set in motion a major development programme, aimed at leading to the production availability in 1963 of a fan engine in the 7,000 lbs. thrust class, designated BS-75. The BS-75 will be a high-flow ratio engine, giving 7,000 lbs. static thrust and an SFC of 0.50 lb./lb./hr. Latest information is that the H-107 wth an earlier type of fan engine, the BS-61, is under consideration by the Airco consortium (de Havilland Aircraft, Fairey Aviation, and Hunting Aircraft) in addition to the DH-121 short-to-medium haul jetliner being built by Airco for British European Airways.

With a maximum takeoff of 42,400 lbs., the top payload of the H-107 would be around 12,000 lbs., with capacity for a maximum of 56 passengers and four crew. Cruise speed would be around 440 knots at 30,000 feet and 38,000 lbs.

British European Airways has now taken delivery of the first three of seven de Havilland Comet 4Bs, and expects to get the remainder in the early months of 1960.

BEA is planning an ambitious start to pure-jet operations. Although regularly-scheduled services are not officially planned to commence until April 1, 1960, the carrier proposes to substitute Comets for Viscounts occasionally on certain European routes—such as those to Frankfurt, Zurich, Dusseldorf and Nice.

Aim is to smooth the integration of Comets into the carrier's network, and build up crew experience and knowledge of operational techniques, prior to the start of regularly-scheduled runs next spring. The 4Bs will be operated as 86 seaters—22 first class and 64 tourist class.

Regular services between London and Athens are set to start April 1, in partnership with Olympic Airways of Greece, which also has two Comet 4Bs on order. On the same day, flights to Moscow and Warsaw will be taken over by Comets.

On May 1, Comets will take over the route to Copenhagen and Stockholm, and probably also to Oslo, while daily services between London and New will start the same day, thereby bringing BEA into line with Air France, which has been operating Caravelles for some time between these two cities. Services to Dusseldorf and Malta are also planned to start about the same time.

On July 1, by which time the whole of BEA's Comet fleet will have been delivered, the airline will start regular services between London and Zurich and Frankfurt. In addition to this extensive transition to pure jet operations (the carrier is aiming at an annual utilization of 2,400 hours) BEA is now busily preparing for the introduction of the turbo-prop Vickers Vanguard, of which it has 20 on order.

Deliveries commence early in the New Year, and services are currently set to start July 1 on the London-Paris route, with a big build-up throughout the carrier's network in ensuing months.

For DC-8 Passenger Comfort

Airline passengers' dispositions are as changeable as the weather—especially if cabin thermometers go up or down with outside temperatures. That's why United Air Lines has joined with other progressive airlines throughout the world in selecting Hokanson H-35 Mobile Air Conditioners. The 19 units in United's initial order will assure "comfort zone" temperatures when passengers board its planes. The Hokanson H-35 has demonstrated its superiority in both competitive field demonstrations and in actual use. Prove it to yourself. Wire, telephone, or write:

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"RELIABILITY IN SPECIALIZED AIR CONDITIONING"

By ERIC BRAMLEY

How Allegheny Handles Commuters

After several weeks of operation, Allegheny Airlines' reservationless commuter plan between Pittsburgh and Philadelphia is working well, and the company has been besieged with requests from U.S. and foreign carriers for details.

Three fares are offered on the route: $18.45 full fare plus tax; 10-ticket books at 15% discount, or $15.68 plus tax (customers fill in their own tickets); commuter, $11.82 plus tax. First two classes have reservations, baggage checking, other usual handling. A reservationless passenger obtains a card at the airport, writes his name on it, time-stamps it, gives it to an agent at the gate. He boards after ticketed passengers, and carries his own bags. All passengers receive the same cabin service.

Of 3,172 passengers during the first month, 2,575 or 81% had reservations and 597 rode commuter. Commuters have increased since that time; many are first-riders and Allegheny believes it is creating a new market.

Here's how flights operate: Control of a trip passes from reservations to the airport one hour before departure, and when a passenger reaches the gate lounge the agent can estimate closely his chances of boarding without a reservation. If the flight is heavily booked, the passenger will be asked to stand by until shortly before departure. Boarding priority is on the basis of time stamped on the card. Some passengers first check the lounge and if the flight looks heavy, will return to the counter and buy a full-fare ticket.

The plane is positioned at the gate 30 minutes before departure. If the flight is light, the agent validates commuter boarding passes and other passengers' ticket envelopes and allows them to board. This early boarding—rather than standing in the terminal—has made a hit with passengers.

A commuter's baggage is weighed only if it seems to be over the average weight which FAA allows the carrier to use for loading purposes. Excess, of course, is charged if the bag exceeds 40 lbs., the amount being stamped on the boarding pass. If a passenger wishes the bag checked, charge is $2.

Once the plane reaches altitude, one hostess starts at the rear collecting or selling tickets. She carries a leather wallet or clutch bag with a ticket pad on the outside and currency and coins for change purposes on the inside. Collecting a ticket normally takes 10-12 seconds.

Handling a commuter, she glances at the back of the boarding pass to see if an excess charge is entered. If not, she collects $13 ($11.82 plus tax), gives him one portion of a ticket as a receipt, retaining the remainder for the airline's records. Transaction takes about 35 seconds. If a passenger wants to use his air travel card, the hostess copies off the pertinent information, since she does not carry a validator. Personal checks are also accepted.

When the hostess finishes her job, she helps the other girl, who has been serving beverages and snacks. The two can easily handle all details of the 66-minute flight of the 44-seat turboprop Convair 540 (four eastbound nonstops daily, three westbound, all but one operated with the 540).

Commuter ticketing is taught in all hostess training classes. Girls are also instructed how to answer a full-fare passenger who asks why he paid more than the $13 passenger next to him who receives the same cabin service. The hostess explains the ground services which the $13 passenger foregoes to get the cheap fare; if the full-fare customer still isn't satisfied she gives him an envelope addressed to Allegheny's accounting department and suggests he take up the matter with them. This has worked well, with few complaints reaching that stage. The explanation, incidentally, has converted some people to commuter service.

Allegheny may ask CAB permission to expand the system to the Cleveland-Detroit route, as well as adding more Pittsburgh-Philadelphia trips. And the popular early boarding plan may be extended to other cities with originating flights.

For Rapid Ticketing: a GISMO

A new ticket printer, known as GISMO, is expected to speed the handling of 60% to 70% of all online and interline tickets sold by Eastern Air Lines. It is in use in New York and Miami, and will be installed in other EAL offices later.

GISMO (graphic imprinter, sales, manually operated) is a desk top printing press in which an agent inserts an embossed plastic plate, pulls a lever to move an inkless roller across the ticket book, and imprints origin, destination, class of service, fare, tax and total. Plates, similar to addressing machine matrixes, are kept in a filing rack. Machine will also hold air travel cards and agent's validator plate. It was developed by Farrington Mfg. Co., Needham Heights, Mass., which produced the new streamlined air travel card for the airlines.

Odds & Ends . . .

Use of the air travel card will be expanded to restaurants. Air Traffic Conference, actively promoting wider use of the card, added eating establishments to the list, which already includes hotels, motels and car rentals.

To speed ticketing, Allegheny is now issuing a single ticket for groups of two or more passengers traveling together to the same city on its system. Single ticket plan also applies to groups of 10 or more traveling together under the airline's 33 1/3% group travel discount.

Second domestic trunk to honor Diners' Club cards is Northeast. Western joined in October. Travel agents can accept cards and receive full commission. NEA arranged for catering aboard the Boeing 707s, under seasonal lease from TWA, to be supplied by Wolfies in Miami Beach and Lindys in New York. Boeings on NEA's Florida route carry 36 first-class and 104 coach passengers.

Jet-to-jet service will be highlighted in big advertising campaign by Air France to introduce transatlantic Boeing 707 service. Boeings will connect with Caravelles in Paris. Newspapers and consumer and trade magazines will be used in the campaign. New York-Paris service starts Jan. 25, Los Angeles-Montreal-Paris on Apr. 1. Irish Air Lines also says a substantially increased advertising and sales promotion campaign for 1960 has been prepared by its new agency, Geyer, Morey, Madden and Ballard, New York.

Latest local service line to serve Continental breakfasts is Piedmont. Meal includes fruit cup, sweet roll and coffee.

Chopsticks are now carried on all Northwest's westbound Orient flights out of New York and Seattle. Passengers are encouraged to try them; directions are printed on the gold-and-white wrapper. NWA is also carrying a new "How to Say It in Japanese" booklet on Orient flights.

FOR TRANSPORT AIRCRAFT

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ABOUT PEOPLE

IN THE AIRLINES

TAYLOR

COPELAND

Dwight D. Taylor, former assistant v.p. of American Airlines, elected v.p. in charge of the Washington office. **Thomas F. Copeland,** who for 11 years has been FAA's senior aircraft inspector for AA's system, joined the airline as director of flying training. **R. Alan Mills,** former mgr. of aviation department of Portland, Ore., is AA's new southern region director of properties and facilities.

Frank Lynott, v.p.-operations of The Flying Tiger Line, elected executive v.p.-operations. **Neil Berboth,** former v.p.-maintenance and engineering, becomes v.p.-operations. **Constantin Moldaw** promoted from director of fuel and facility contracts to assistant v.p.

T. L. Boyd, who resigned as v.p.-flight operations of American Airlines after 25 years with the company, named director of flight operations for National Airlines. **John Wolgast,** 19-year veteran with Wright Aeronautical division of Curtiss-Wright, named assistant to NAL's v.p.-maintenance and operations.

George Lambert resigned as TWA's director of sales schedule coordination to become U.S. sales mgr. of KLM.

Francis J. Swayze named head of Pan American's technical assistance program, succeeding **Thomas O. Hardin,** who retired. Swayze has been PAA's technical assistance director in Afghanistan and executive v.p. and gen. mgr. of Ariana Afghan Airlines, which PAA has been helping. Hardin, well known in aviation, headed the old CAA's Air Safety Board before World War II, was v.p.-safety of TWA, commanded the India-China airlift over the Hump during the war.

BOYD

LAMBERT

HADFIELD

COLE

David A. Benz resigned as senior v.p. of Aloha Airlines because of his increasing participation in other business enterprises. He will serve as consultant to the airline and continues as a director.

James O. Leet resigned as Pan American's New York sales mgr. to become v.p. of Irish Air Lines in North America. He succeeds **Michael J. Dargan,** who returns to Dublin to resume the post of assistant gen. mgr.

Leslie G. Carter promoted from chief pilot to operations mgr. of New York Airways. **Capt. Frank LoTurco** succeeds him as chief pilot.

Capt. R. E. (Rube) Hadfield, former central region chief pilot for Trans-Canada, appointed mgr. of aircraft sales to handle disposal of surplus piston equipment.

J. P. Cole Jr. named chief pilot of Ozark Air Lines, succeeding **Charles White,** who returns to the line as a captain and check pilot.

AMONG THE SUPPLIERS

Paul A. Kennedy, v.p. of Southwest Airmotive, elected president of Aviation Distributors and Manufacturers Assn. New vice presidents: **E. H. Fitch,** B. F. Goodrich Aviation Products, and **George R. Galipeau,** Van Dusen Aircraft Supplies.

Leo W. Killen, former director of Fairchild's F-27 project, appointed sales director of the aircraft and missile division. **Armand J. Thieblot,** who left Fairchild in 1951 to form his own company, returns as engineering director.

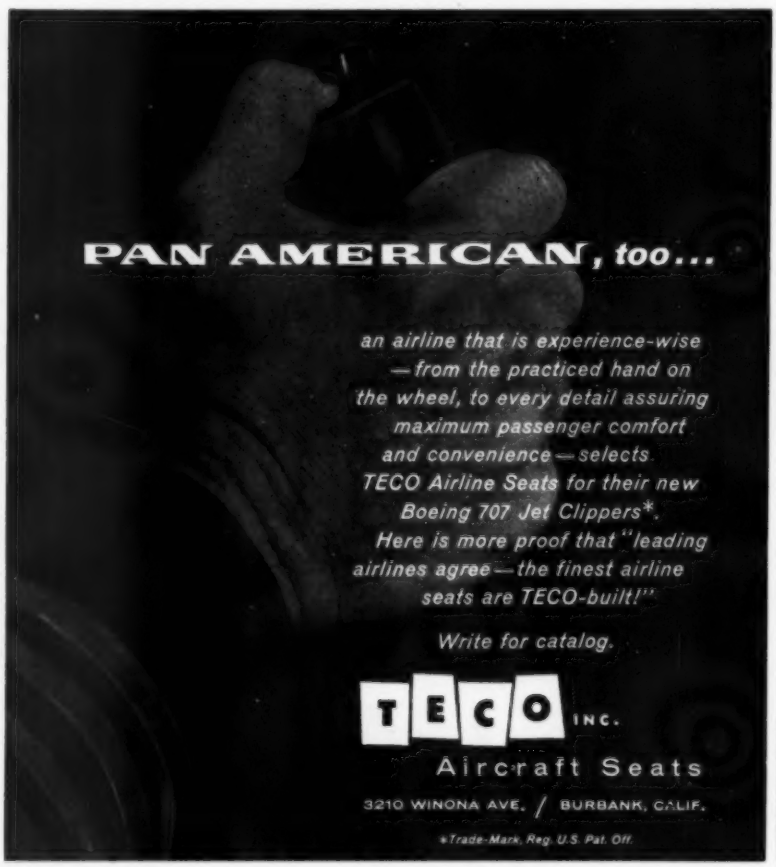
OTHERS IN AVIATION

Guy M. Springer Jr. elected v.p. of Air Cargo, Inc. He joined the airlines' ground service organization last August after 13 years with Capital as cargo sales mgr. and general sales mgr.

Joseph J. Reino resigned as president of Air Traffic Control Assn. to "save the association embarrassment" after a newspaper story in which he said he was misquoted. Story quoted Reino, a Washington tower controller, as branding as "stupid" FAA's personnel plans for civil assumption of military ATC work, and saying controller trainees sometimes work without proper supervision. **Charles Newpol,** v.p., will act as president until next summer's elections.

IN THE AGENCIES

Clifford P. Burton appointed chief of FAA's analysis division in the office of plans and requirements. He was with CAA until 1953, served as executive director of Air Traffic Control Assn., later was Washington representative for Bendix.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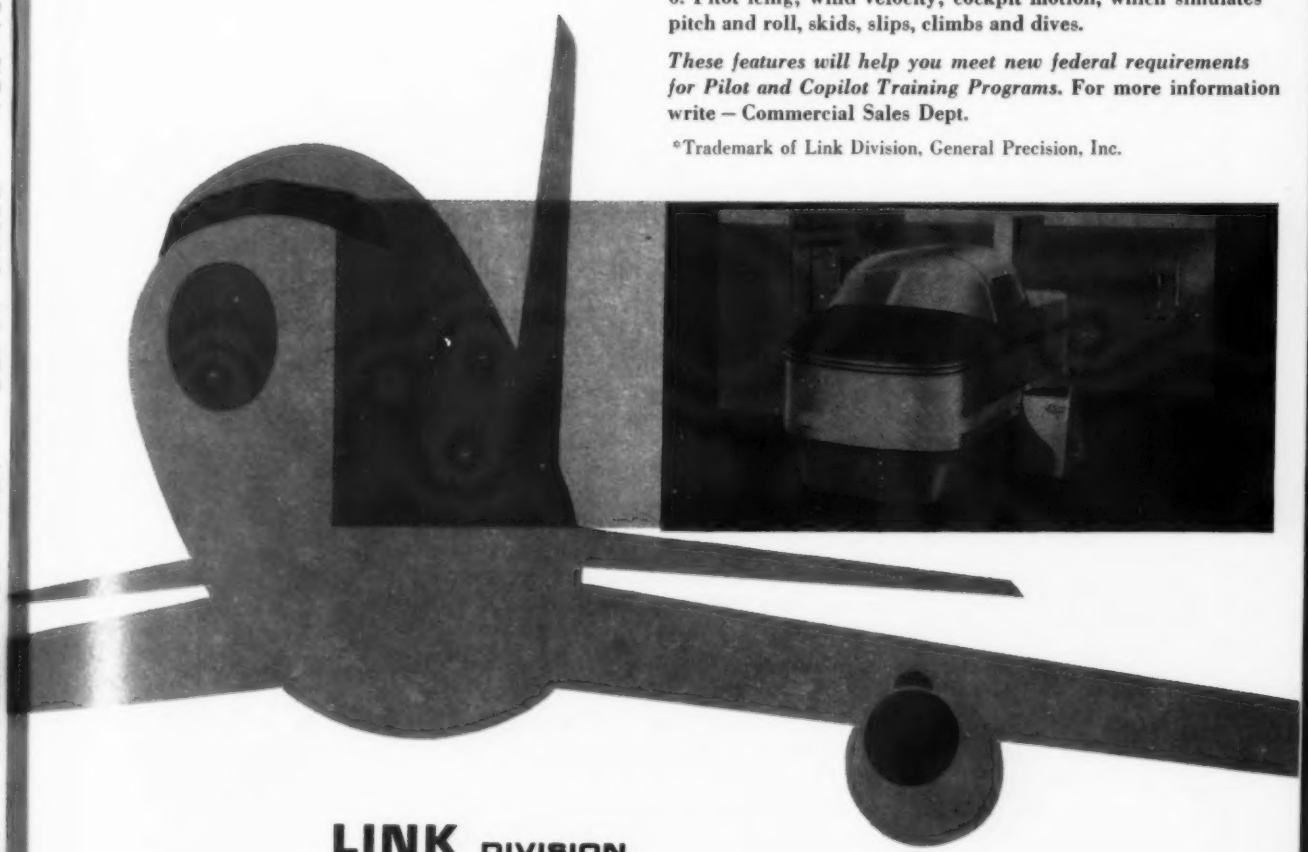

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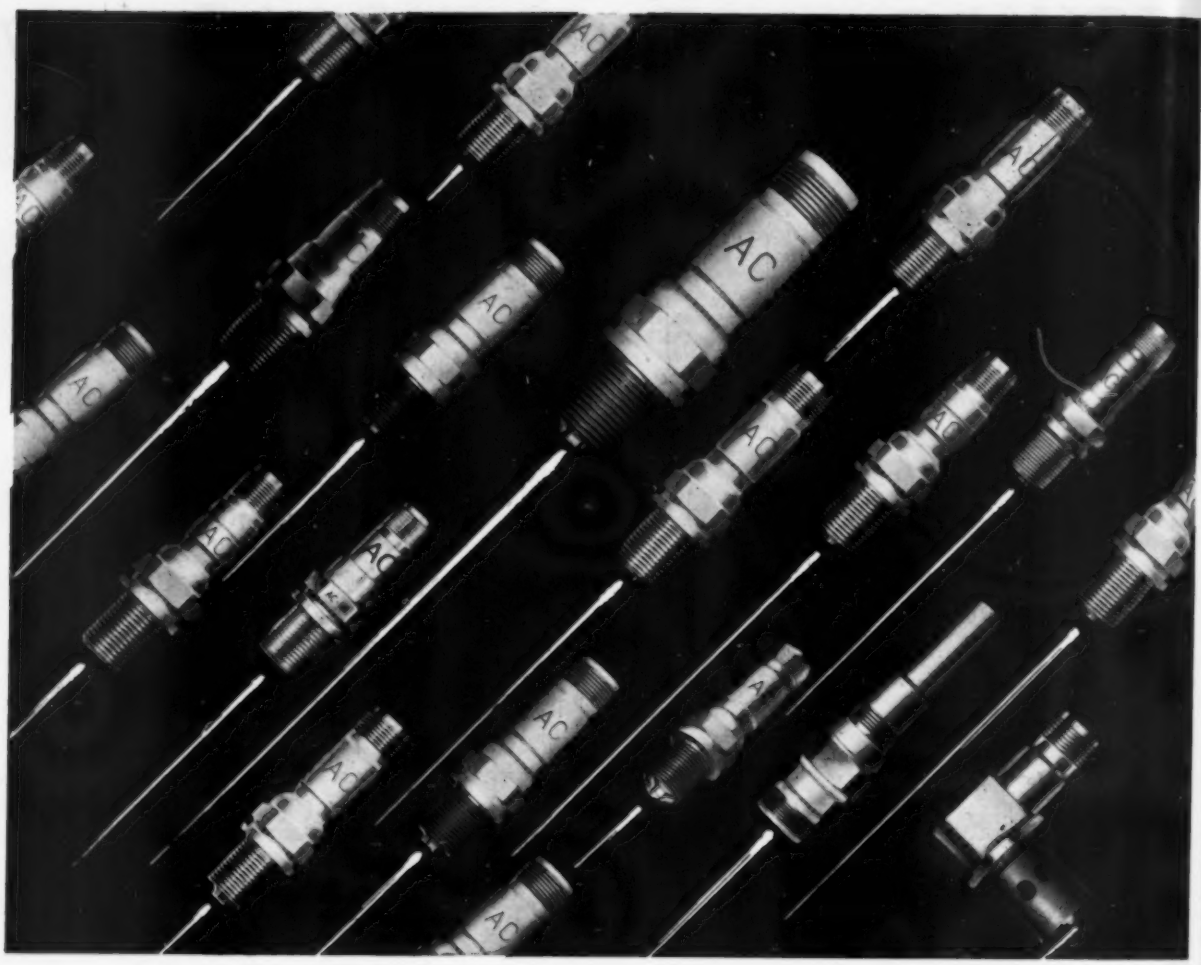

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AC Presents the Art Carney Show, NBC-TV, January 8

CAB Overrules Examiner On 'Use It or Lose It'

CAB overruled its examiner and denied recertification of seven Trans-Texas Airways cities which did not enplane five passengers a day. The Board's "use it or lose it" policy states that temporary points will not be renewed unless they meet this standard.

Examiner Thomas L. Wrenn had said the policy wasn't in effect when the points were first certificated and that, therefore, the cities hadn't been put on notice (*AIRLIFT*, June). He disagreed with the policy because it requires five passengers daily regardless of the number of schedules operated through a point, whether schedules were timed to meet the city's needs, and regardless of population of the city.

However, CAB said the fact that a city's certificate is temporary is notice to it that service is on a trial basis.

Recertification was denied College Station-Bryan, Kerrville, Pecos, Beeville, Coleman and Brady, Tex., and Helena-West Helena and Stuttgart, Ark. Brownwood, Marfa-Alpine, Galveston and Ft. Stockton were renewed for five years.

A few days later, however, CAB departed somewhat from "use it or lose it" in recertificating Frontier Airlines for five years at Gunnison, Colo., Rawlins, Wyo. (on segment 7), Sidney and Miles City, Mont. These points did not meet the policy, but Gunnison would be isolated without air service, and the others are expected to average five boardings daily in "the foreseeable future."

Seven FAL cities were dropped: Kemmerer, Rawlins (segments 5 and 6) and Greybull, Wyo.; Clifton-Morenci, Ariz.; Monte Vista, Colo., and Dickinson, N.D. and Wolf Point, Mont., on segment 9.

PAA-National Stock Agreement Opposed

Stock option agreement between Pan American World Airways and National Airlines is adverse to the public interest and should be disapproved by CAB, examiner Leslie Donahue recommended.

He favored approval of the PAA-NAL arrangements for leasing jet transports to each other, stating that the deal was beneficial to the carriers and to the public.

Donahue said PAA has acquired indirect control of NAL by acquisition of about 25% of the latter's common stock, and that it has option to acquire more, up to an aggregate of 250,000 shares. When PAA is able to vote this stock after an eight-year restricted period, it "will have direct control of National," he stated.

ACTIONS

BOAC was recommended by CAB examiner Curtis Henderson for amendment to its foreign air carrier permit to operate London-Los Angeles via a polar route. The route is provided for in the U.S.-British air agreement.

CAB added Ft. Lauderdale as a coterminal with Miami for six airlines—Capital, Delta, National, Northeast, Northwest and TWA. Certificates of EAL and NAL were amended to add Ft. Lauderdale as an intermediate on Miami-West Palm Beach and Miami-St. Petersburg/Clearwater routes.

Resort Airlines was granted permission to suspend Caribbean "Skycruise" service until July 1, 1960.

CAB examiner William Cusick said in his initial decision in the Erie-Detroit investigation that suspension of either Allegheny or Mohawk would not be in the public interest. Allegheny's Erie-Detroit certificate and Mohawk's Buffalo/Niagara Falls-Erie-Detroit authorization should be made permanent, he recommended.

CAB granted and President Eisenhower approved issuance of a foreign air carrier permit to Linea Expressa Bolivar to operate between Venezuela and Miami via Netherlands West Indies and Jamaica.

British West Indian Airways received approval of CAB and the President to amend its foreign air carrier permit to include authority to operate between Barbados, W.I., and New York, and between London and New York via Shannon, Azores, Bermuda, Gander and Montreal, and beyond New York to Jamaica.

MAIL RATES

Hawaiian Airlines, which has been off subsidy, asked for a temporary subsidy rate. Inauguration of F-27 service by Aloha has increased its need, HAL said. Break-even need in year ended Sept. 30, 1959, was $133,700 plus $76,017 interest charges, but for the year started Oct. 1, 1959 these figures will be $226,000 and $170,500, it added.

North Central Airlines asked a $992,195 increase in its temporary rate for Nov. 23, 1956-Oct. 31, 1959, and said the rate for the year started Nov. 1, 1959 should be increased to $5,524,545.

Frontier Airlines requested increase of $801,797 in temporary rate for Oct. 1, 1957-Sept. 30, 1959, and increase to $7,000,097 in rate for year started Oct. 1, 1959.

Wien Alaska Airlines wants rates for 13 months ended Oct. 31, 1959 increased to $2,061,902 plus $78,000 interest, and seeks a $1,910,000 rate plus $100,000 interest for year started Nov. 1, 1959.

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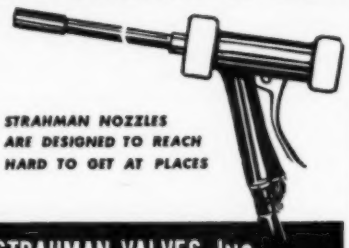

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MAINTENANCE

Do-it-yourself Towbar For 707-220 Jockeys

Braniff Airway's mechanics and tool experts have come up with their own version of a towbar that makes a one-man operation out of moving a Boeing 707-220.

It's a special design, weighs 600 lbs. and has a pull of 22,000 lbs. Among its special features is a hydraulic system which permits one man to connect the towbar to the 707. The bar itself is a 21-ft. length of 8-in. diameter steel pipe.

Braniff's towbar designers were D. R. Robertson, foreman of tooling and manufacturing, and Bob McCord, tool designer. Braniff has built 12 for 707 support.

Atomic Pills Speed LAS Checks at Idlewild

Atomic energy—specifically Iridium 192 which emits metal penetrating rays similar to X-rays—has been adapted to aircraft inspection by Lockheed Aircraft Service to save time in routine maintenance.

Iridium 192 was developed by Picker X-ray Corp. Though it is more powerful, it is easier to use than conventional X-ray, and can penetrate up to three inches of steel alloy. LAS is using it to inspect heavy steel landing gear cap wells.

Iridium 192 inspection equipment was developed by Technical Operations, Inc. for use by LAS at its Idlewild overhaul base. Only other similar equipment is used by Eastern Air Lines in Miami.

Sound Waves Clean Oil Filters in Half the Time

Ultrasonic cleaners have chopped in half maintenance time on oil filters used in Allison engines on the Lockheed Electra.

The one-kilowatt, six-gallon units are designed by Gulton Industries, Metuchen, N.J. They sonically accomplish in 10 minutes a task that formerly required 20 minutes of hand scrubbing. Oil filters on the Electras are cleaned after every 300 hours of flying time.

364 Learn Magnaflux

After three years of operation, Magnaflux Corp.'s five-day training course in Magnaflux inspection has enrolled more than 364 inspectors, quality supervisors, operators and operator instructors—and it's still going strong.

The course fee to airline personnel is $100.

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Produced exclusively for the Sikorsky Turbocopters, these Loewy-designed seats are still another example of Aerosmith's versatility in manufacturing seating for all types of commercial, business or military air transport equipment.

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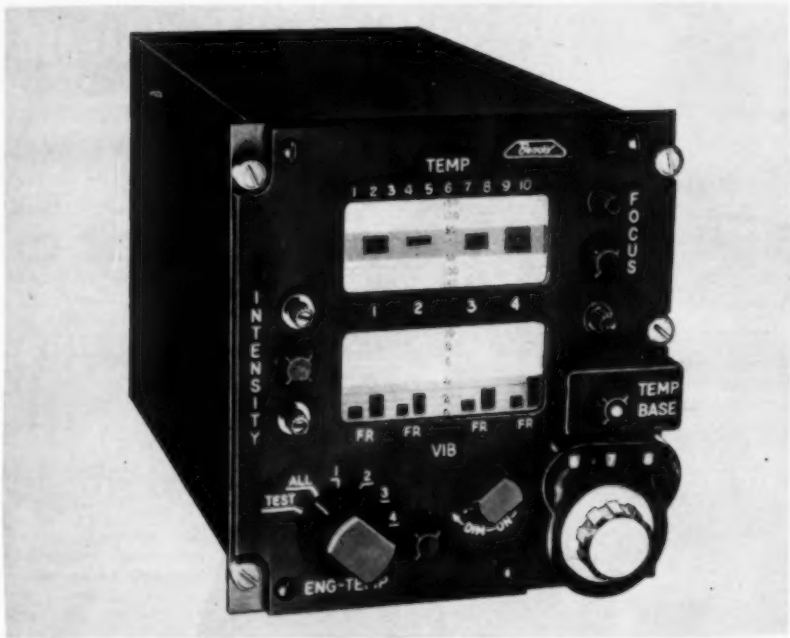


Temperature and Vibration Monitor

The Bendix Scintilla Division has evolved a combined temperature and vibration monitor for turbines that will show pilots where their engine troubles lie and give them an instant check on the effect of in-flight corrective action.

The job is done with probes—thermocouples for temperature and velocity pickups for vibration—which are strategically located within the engines.

Vibration pickups might be placed on the front and rear bearing or on the front frame support bearing or compressor frame. Thermocouples could be positioned near the exhaust nozzle to read exhaust gas temperatures on pure jets, or near the turbine inlets on turboprops.

But the real beauty of the Bendix system is the display device located in the cockpit, consisting of two rectangular cathode ray tubes mounted one below the other on a display panel, which depict temperature and vibration data as electronic bar graphs.

The unique feature is the way each of the tubes can be switched to read different temperature or vibration ranges and to show the condition of all four engines at the same time, on the same screen. The pilot thus has at his fingertips a capsule display of the way all of his engines are performing, any time he chooses to check.

If one engine runs too hot, he finds it out immediately and can ease off his power setting to cool it back to normal. And if an engine starts vibrating abnormally, he can shut it down completely rather than risk losing it.

For general use, the temperature indicator shows an average condition—temperature range, they call it—which merges all the thermocouples on an engine into a single trace. A sampling circuit, with a mechanical rotary switch, feeds the probes' signals to the display tube where they appear as small bar graphs. Four of these—one for each engine—are spread across the face of the upper CR tube.

The pilot can switch to individual display and can change the time base so that the temperature at each thermocouple can be pinned down within 1% of a base line temperature of 600 deg. This lets him know which part of the afflicted engine is too hot, and helps him decide whether to try to correct it in flight or to shut it off.

Pratt & Whitney JT3s and 4s on 707s and DC-8s usually have six temperature probes each. Bendix lets the engine manufacturer determine the best location for each probe.

The vibration screen normally shows eight bar graphs, two for each engine, though up to 14 channels can be handled at once, if necessary. Excessive vibration usually indicates an unbalanced condition in the compressor, turbine or accessory section. Here again the time base can be switched to narrow the scale and permit a more accurately pinpointed reading.

The indicator is edge lighted for better readability while the intensity of the trace can be controlled to compensate for ambient light in the cockpit.

Service life on the unit is 3,000 hrs., a figure which is set by the mechanical switch. Tubes and other components will go 5,000 hrs. between overhauls.

Weight per unit is 23 lbs., including the scanner amplifier and control indicator. An Intestu testing facility can be used to ground test the electronics portion by simulating probe signals.

Bendix says the units are ready to go now, and cites a recent sale to BOAC. Current two-a-month production will be stepped up as more orders come in.

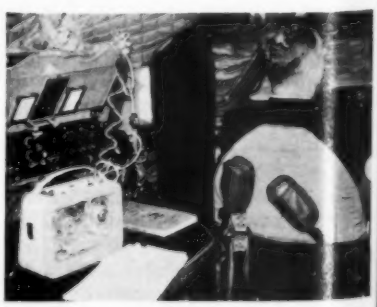
Write: Dept. A/L, Scintilla Div., Bendix Aviation Corp., Sidney, New York.

NEW PRODUCTS

Circular Slide Rule

A circular slide rule for engineers and other plant and office executives is available from General Industrial Co., Chicago. The rule can be used to multiply, divide and determine proportions. It is free to engineers and business executives.

Write: Dept. A/L, General Industrial Co., 1788J Montrose Ave., Chicago, Ill.



Tape Recorder

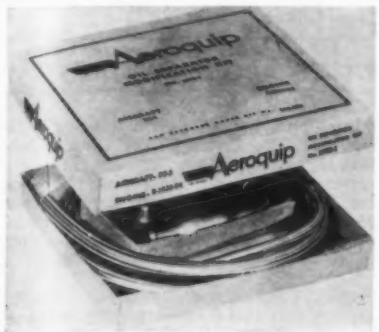
BOAC is recording all air-to-ground

radio communications on transatlantic jet flights with a portable, battery-operated Stuzzi Magnette tape recorder.

Made in Vienna, the Stuzzi runs 100 hours on four flashlight batteries, and can record up to 2 hrs. on a single 4-in. reel of tape.

It weighs 8 lbs., can be plugged into the communications system of any airplane, or carried in a portable case for recording anywhere with a self-contained microphone. Playback is through headphones.

Write: Dept. A/L, Ercona Corp., 16 West 46th St., New York 36, N.Y.



Oil Separator

Aeroquip Corp. has a new oil separator assembly kit for controlling oil discharge from DC-3 crankcase breather lines. It includes a separator, hose, fittings, adapter and vent tube.

The kit will fit DC-3s with only minor modifications and no relocation of other accessories. It is also adaptable to other types of aircraft.

Write: Dept. A/L, Advertising Dept., Aeroquip Corp., Jackson, Mich. Request Bulletin No. 242.

Weatherproof Switch

Dowty Nucleonics Ltd. uses a new method of waterproofing on its "Greasfil" switches for airborne use which makes them impervious to rain, ice, mud and similar hazards. The switch is designed to operate efficiently at all altitudes and over a temperature range from plus 70 to minus 55 deg. centigrade.

Write: Dept. A/L, Charles Irving, Dowty Group Ltd., Cheltenham, Glos., Gt. Brit.

Distributed Amplifier

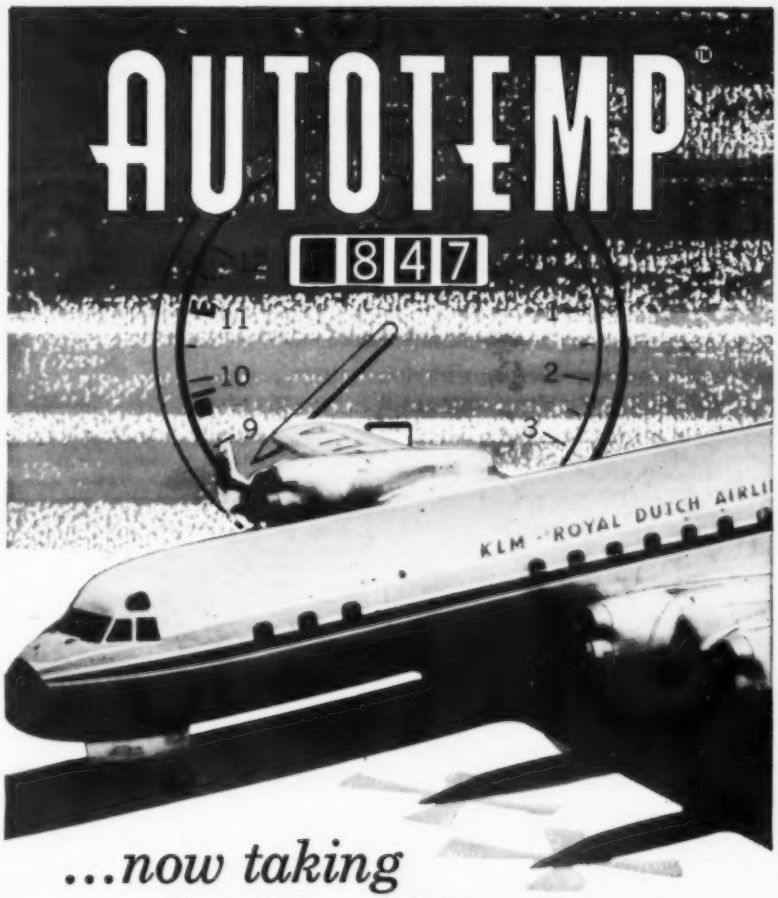
A new breed of HF radio transmission for ground applications has been devised by Marconi Wireless Telelgraph Co. engineers. It features a distributed amplifier instead of more conventional circuitry.

The distributed amplifier will do away with time-consuming stage-by-stage retuning necessary in conventional amplifiers whenever the frequency is changed.

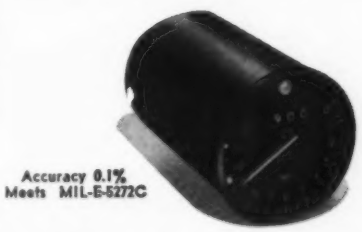
Marconi's HS-113 transmitter is a 1,000 watt unit which will take all frequencies from 2 to 24 MC individually or simultaneously. Each frequency can be used to carry a number of independent channels.

The distributed amplifier transmitter is simple to operate and requires little maintenance. It has no moving parts to wear out and simply puts out a little less power instead of ceasing to work altogether, when a tube fails.

Write: Dept. A/L, Marconi's Wireless Telegraph Co., Chelmsford, Essex, England.



...now taking Lockheed ELECTRA'S *temperature...to 1°C.*



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Full information is contained in our Bulletin BH183 available for the asking!

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INFO FOR THE ASKING

Multichannel tape recorder—Thermionics Products Ltd. has a folder describing a multichannel recorder capable of recording up to 20 channels on a single tape. The unit replaces equipment in standard use by many nations.

Write: Dept. A/L, Termionic Products (Electronics) Ltd., Hythe, Southampton, Gt. Brit.

Airborne tape reproducer—Data describing unit for transport use is available from Murphy Radio, Ltd. Murphy line also includes passenger announcement equipment, radio telephones, navigation aids, radar, and other airborne communications equipment.

Write: Dept. A/L, Murphy Radio, Ltd., Welwyn Garden City, Hertfordshire, Gt. Brit.

Silicone products—Booklet describing silicone rubber products for the aircraft industry is offered by Dunlop Rubber Co. Line includes wide variety of rubber products for aircraft engines, systems and accessories.

Write: Dept. A/L, Dunlop Rubber Co. Ltd., Aviation Division, Coventry, Gt. Brit.

Proof test stand—Model F-2197 Proof Test Stand of Aeroquip Corp., Jackson, Mich., described in Aeroquip engineering bulletin.

Write: Dept. A/L, Aeroquip Corp., 300 S. East Ave., Jackson, Mich.

SARAH—Bulletin from Simmonds Aerocessories, Inc., Tarrytown, N.Y., explains Search and Rescue and Homing (SARAH) system.

Write: Dept. A/L, Simmonds Aerocessories, Inc., 105 White Plains Rd., Tarrytown, N. Y.

Power connectors—28-page catalog contains information on line of power connectors. Includes AN, MS, and special rubber molded cable parts. A. & J. M. Anderson Mfg. Co., Boston.

Write: Dept. A/L, A. & J. M. Anderson Mfg. Co., 289 A St., Boston, Mass.

Avro 748—Brochure from Hawker-Siddeley contains design information about the Avro 748 feeder-line turboprop.

Write: Dept. A/L, Hawker Siddeley Aviation, 32 Duke St., St. James's, London, S.W.1.

Design manual—TA Mfg. Corp., Los Angeles, has published a complete design manual pertaining to electronic and hydraulic installation supports.

Write: Dept. A/L, TA Mfg. Corp., 4607 Alger St., Los Angeles 39, Calif.

—FOR YOUR BOOKSHELF—

FAA has published a revised edition of its "Standard Specifications for Construction of Airports," containing current airport construction practices in areas such as clearing, grading, drainage, paving, lighting, and incidental construction.

The 599-page book revises an earlier edition distributed in 1948. It contains valuable information for guidance of project sponsors and contractors for preparation of plans and specifications for airport projects.

To obtain a copy, write the Supt. of Documents, U.S. Government Printing Office. Price is $2.75.

NOTES ABOUT SUPPLIERS

• Airsupply and Aero Engineering Divisions of The Garrett Corp. and a subsidiary, Garrett Manufacturing, Ltd., will represent Universal Equipment Corp. for the sale of passenger seats manufactured by Aircraft Mechanics, Inc. Seats are a new design which adapts to body curvature in all degrees of sitting or reclining.

• Trans-Canada has bought 15 turbo-starters and two flyaway turbine compressors from Boeing's Industrial Products Div. The turbo-starters will be used at major international stops and the flyaway units for emergency support and charter operations.

• A shop for assembling Aeroquip hose and fittings has been opened by Southwest Airmotive in its midwest parts distribution base at Fairfax Municipal Airport, Kansas City, Kansas. The shop will specialize in the reclamation and reuse of old fittings sent in by customers.

• A standardization plan on pooling jet ground support equipment saved 15 major carriers $200,000 out of their first $1 million in orders, according to Dr. Charles J. Breitwieser of Air Logistics Corp. where the plan originated. Participants were Air France, AA, Braniff, Delta, Eastern, JAL, KLM, Lufthansa, National, PAA, Philippine Airlines, SAS, South African Airways, Swissair and TCA.

• Lockheed has ordered $1 million in Collins communications and navigation equipment for its business JetStar. First JetStars will be outfitted with all Collins gear including the FD-105 integrated flight system. Deliveries began last month and will continue through 1960.

• Tactair's T-3 autopilot is now in full production and en route to customers. The T-3 is a totally non-electric system which uses pneumatics for all sensing and operating functions.

• Temperature control systems for North American's T-39 utility jet will be developed and produced by Hamilton Standard Electronics Dept. The systems will be completely transistorized. On the T-39, only the cabin temperature needs regulating.

• Servonics, Inc., Alexandria, Va. has received a $709,000 contract from FAA for 26 radar target simulators. FAA will use the simulators for training controllers in basic radar procedures. First deliveries are scheduled for December. The units will be located at 26 domestic air route traffic control centers throughout the country.

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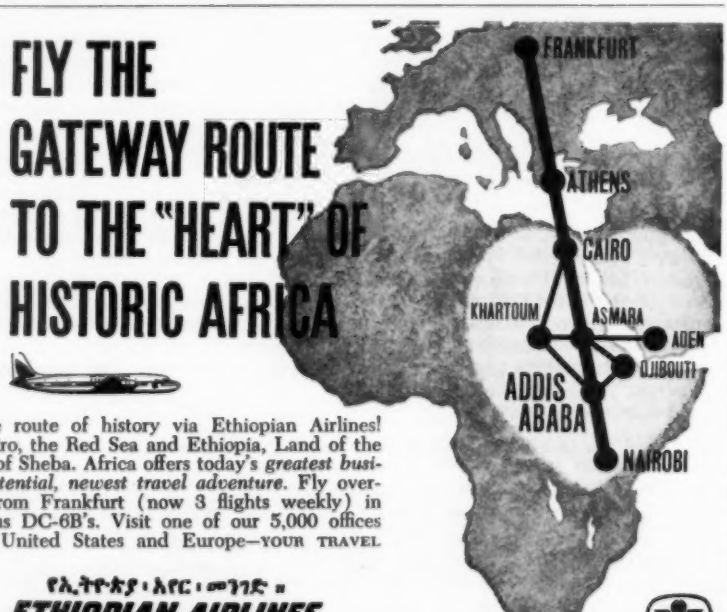

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EN ROUTE

Wayne W. Parrish

Bumped at Kabul . . . an Unscheduled Tour of Bombay

It is just a nice 833 miles from Kabul, Afghanistan, to New Delhi, India. When there's an airplane. When there isn't, you've had it. Just my luck, Indian Airways Corporation cancelled for the season one of its two weekly flights while I was en route to Kabul. Next flight was a day too late for the opening of the IATA meetings to which I was headed.

So, go another way. So you're in Asia, not America. So it is only a mere 1,573 miles to Delhi by way of Karachi. And if that plane's filled, then it's just a neat 2,005 miles by way of Karachi and Bombay. And that's the way I went—almost three times the shortest distance all because of a cancelled flight. You've got camels, bullocks—and you've got a few airplanes. Take your choice.

Off from Kabul in an Ariana DC-3 bound for Kandahar and Karachi. Did I say DC-3? Pardon me, I meant a C-47. The seats all along one side had been replaced by bales of karakul hides. Did I say they smelled? Well, I did. Most of the other passengers were wrapped up in robes and equipped with turbans. It was a mixed cargo flight for sure. Non-insulated, of course. The flight purser had charge of the toilet paper (a somewhat rare item in Afghanistan) which is kept in a big cardboard carton along with the food service which consists of sandwiches, bananas and Pepsi.

Six hours of desert

Endless flying southward over the most desolate, arid country in the world. An hour and three-quarters to hot Kandahar, then almost four solid hours until the big Pakistani port is reached on the Arabian Sea.

Did the message get through asking for onward reservations? Of course not. It takes days to get a message out of Kabul. So shop around. Sure, shop around, one counter to the next. No such thing as an airline guide. I couldn't even remember where I was on the map. Pakistani Airways was leaving for New Delhi. But our tickets weren't in order. Our travel cards weren't good without a lot of paper work. PIA left without us. Next day's Indian Airways flight was already oversold.

So—after much help from Paul Lee of PAA, and Brendon Lobo of SAS—I decided to travel more miles and take a chance. The IAC Viscount to Bombay had seats. Could I get a connection? Who knew? There is no teletype to Bombay. Karachi seemed almost as isolated as Kabul. SAS and PAA had flights—but no traffic rights. It was awfully hot. Flies in the terminal. Irritating. Uncertain. Lost. I now know what a foreigner runs into when he doesn't speak the language and is unceremoniously bumped off his plane in New York. It was Saturday. I couldn't raise any traffic manager of any airline.

My wife and I parked our baggage, handbags and coats. Some hours to wait for the Bombay departure. At long last I took a walk when the sun went down and discovered Speedbird House, a truly magnificent oasis about a quarter-mile down the road from the terminal. Nobody had mentioned such a place to me. Clean, refreshing, handsomely decorated, cool drinks, and praise be to BOAC for providing such a wonderful spot. It saved the day. The manager took pity and bid me welcome. My neckband wasn't so sweaty now. Life began anew.

Back to the terminal for a night flight to Bombay. I had never been there before. Indian Airways' Viscount service was awfully good. A perfect delight. I forgot about riding with karakul hides over deserts. Then came Bombay with its sticky Indian immigration and customs. And no onward reservations. It took forever to get to a counter where I could find out if there were two seats on the night mail plane. There weren't.

So, stuck in strange Bombay. Nobody told us about the hotel in the terminal, so with overnight bags, off we went to town at midnight bound for a hotel—any hotel. The bus was old and crowded with a strange assortment of passengers. It's a long, long, and bumpy ride. As we got into the city, here was jam-packed, densely populated Bombay, mostly asleep.

Is it true that there are 700,000 without homes? I've read that figure. Anyway, we saw tens of thousands of Indians sleeping on sidewalks, just about anywhere. A staggering sight. It has to be seen to be believed. Like a black and white cinema it was, grey street lights and shadows. Unreal. But it is real enough to the homeless of India.

I told the driver we'd go to the downtown terminal. No wonder he had looked blank. The terminal was dark. Closed. The only hotel I had heard of was the Taj Mahal. The bus took us there. But would there be a room? Ever had that awful, tired, uncertain feeling in a strange city?

Glory be, the night manager gave us one, reluctantly. And we paid plenty for it. But what a relief to have a bed and bath even for a few short hours. We had to get up before dawn to take the early morning bus to the airport to take a chance on getting two seats to Delhi.

Out again to the airport. Bombay was awakening. It was just dawn when we arrived. Two seats? We had to wait. We were go-shows only. After a long time, every passenger turned up. No seats. Next flight: that night. If we missed that one, we missed the opening of IATA. No guarantee of seats. No alternate route, no matter what distance. No possibility by train. No nothing. If you don't have airplane seats, you just wait.

At last: a helping hand

By this time some airline acquaintances had spotted us. And Indian Airways Corp. personnel could not have been more friendly, sympathetic, and helpful. It wasn't their fault that there were no seats—we had come out of back country unannounced. Up turns D. C. Warden, passenger relations officer for IAC, who was about the nicest and most helpful airline employe I've ever encountered anywhere. May the Good Lord take care of him through his whole life.

Through Warden we discovered the airport hotel—and got a room for the day and the next night if we still couldn't get out. So what to do on a Sunday in strange Bombay? All the airline people had gone to Delhi. Into town we went again. The driver and his aide came to consider us as commuters. At the Taj Mahal we hired a car and driver to see the city. What a lucky break we had. The driver was excellent.

Millions of Indians. Swarms in every street. Fantastic and wondrous Hindu temples. Even climbed the tall minaret of an old Moslem mosque. Saw the Tower of Silence where bodies of some high-caste Indians are lifted on top to be devoured by the ever-present vultures. This was in the best residential section. Then the parkways, beaches and parks. And to the markets and to the sizeable prostitute and homosexual area—both repulsive to an extreme. Poverty almost everywhere. Jillions of Indians. But the more one saw, the more one wished he could help.

It was a fantastic day. Never to be forgotten. I had seen Calcutta, but never Bombay before. The cows wandering everywhere, the urchins,—well, why go on. Yes, we took the bus for the last time to the airport. Mr. Warden was there. By some good fortune we got two seats on the evening Viscount to Delhi. Another fine flight. Two days and a night out of Kabul, we arrived at midnight, tired but enlightened about air transportation, Bombay, and the very friendly Indians who tried so hard to help us on our way.

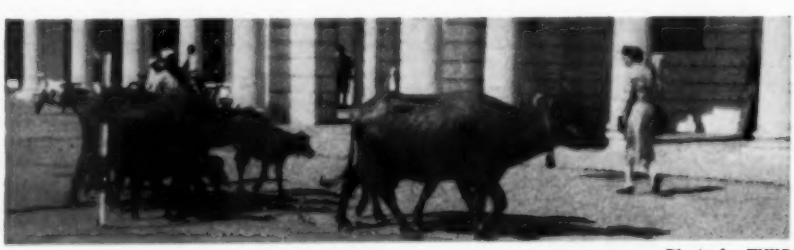


Photo by WWP

Cosmopolitan New Delhi has everything from Rolls-Royces to bullock carts. WWP snapped this common scene on one of the main (and quite modern) circles of the city.

ANNOUNCING A NEW DEVELOPMENT BY BENDIX

TEMPERATURE VIBRATION MONITOR*

FOR TURBINE ENGINES

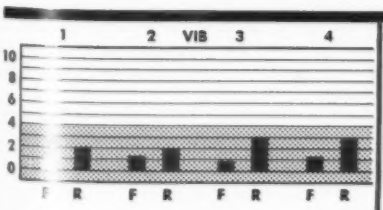
Provides a continuous condensed display of turbine engine vibration and temperature conditions

A landmark in engine instrumentation progress is the Bendix* Temperature-Vibration Monitor which simultaneously displays the findings of 40 temperature and 8 vibration sensors strategically located on all 4 engines of a turbine powered aircraft. This data is presented on the flight deck of the aircraft in bar graph form so that it can be continuously monitored and easily read.

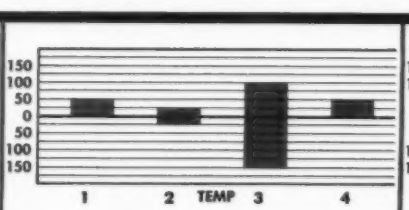
The average displacement of 8 vibration pickups is displayed continuously on the lower cathode ray tube with the top of the bar graph indicating vibration displacement on the grid scale. This continuous monitoring of vibration immediately indicates excessive unbalance on the jet engine.

The temperature analysis normally associated with the exhaust gas thermocouples will locate faulty burners, bad combustion distribution and plugged nozzles or any unusual hot or cold conditions around the turbine engine exhaust. The temperature display in the "all" position presents maximum and minimum temperatures on the upper cathode ray tube continuously for the four engines as reference to a temperature datum set in by the operator. The individual engine temperatures can be displayed as 10 bar graphs whose deflection can be read on the tube scale as deflections above or below the temperature datum, and individual degrees may be accurately and easily read from the digital read-out dial.

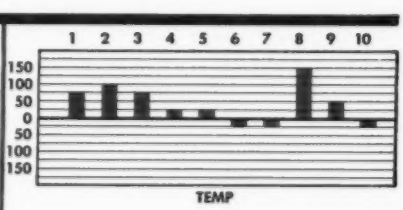
The equipment, initially developed for BOAC, is applicable to all airline and military turbine powered aircraft. The equipment for the four engine installation is approximately 30 lbs. and includes the Temperature-Vibration Monitor pictured above and a remotely mounted ½ ATR short box. *TRADEMARK



Vibration indication for four engines with front and rear pickups on each. Height of display indicates total vibration displacement.



Temperature "all" display indicating maximum and minimum temperatures above and below temperature datum for four engines.



Temperature for single engine indicates all thermocouples indicating temperature above or below temperature datum reference.

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. . . important news about

JET STARTING

Cornelius 309 compressor "package." 9 cylinders, 8 to 10 CFM, 3000 psi. This one compact unit includes all of the components named in the schematic drawing (below left).

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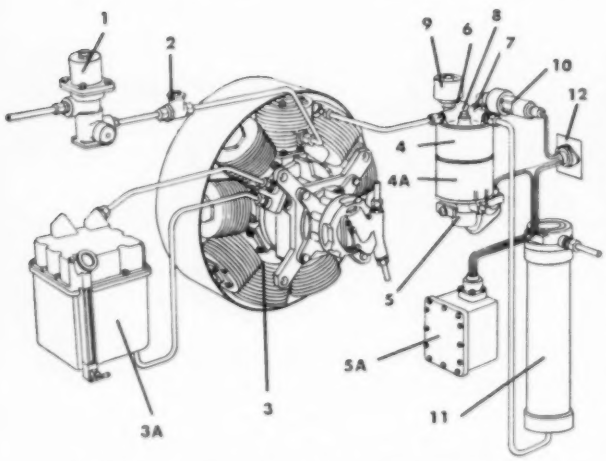

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The Cornelius 309 compressor "package" will soon be operational on five major domestic airlines and five major foreign airlines. It has also been selected for installation on the Allison Prop-Jet Super Convair. This pneumatic system was developed to give jets better, faster starts. It is unmatched for reliability, capacity and longer life. It improves the performance of any jet or prop-jet equipped with a fuel-air starting system.

Here are some facts that demonstrate Cornelius equipment superiority: The 309 compressor is the largest capacity compressor now in production and flying. Its 8 to 10 CFM air delivery is 50 per cent greater than any other available compressor. This larger CFM delivery means greater reliability and longer life because less "ON" time is required for air reservoir recovery; is ideal for short flights.

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